ENGINEERING, SCIENCE AND MANAGEMENT WAR TRAINING

Regional Advisers

Agenda for Eleventh Meeting

Washington, D.C., September 4-5, 1942

Room 3142, South Interior Building

9:30 A. M.

A. GENERAL DISCUSSION OF ESMWT PROGRAM

1. Statements and discussions by invited guests from industry and Government.
2. Training of women.
3. Teacher training courses.

B. DISCUSSION OF SPECIFIC PROBLEMS OF ESMWT PROGRAM

1. Minutes of Meeting of June 29-30, 1942.
2. National Institute on Education and War Meetings (Symposium).
3. Present status of training program on College level.
    a. ESMDT
    b. ESMWT
4. Regional Advisers "Coordinators" and "Coordinating Committees."
5. Services of Field Representatives and Field Auditors.
6. Employment records of trainees.
7. Discussion of Visual Aids, Dr. Klinefelter.
8. Specific Items for Discussion.

C. OTHER MATTERS FOR DISCUSSION

D. TIME AND PLACE OF NEXT MEETING

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FEDERAL SECURITY AGENCY
U. S. OFFICE OF EDUCATION
WASHINGTON

July 15, 1942

TO: ESMWT INSTITUTIONAL REPRESENTATIVES

SUBJECT: Delegation of Authority to Approve ESMWT Preliminary and Final Proposals

Supplementing my memorandum to you of April 23, 1942, I have, in accordance with the law and upon the recommendation of Director Case, delegated to H. M. Crothers authority to sign for the Director preliminary and final proposals for ESMWT courses in all ESMWT regions; to F. W. Marquis authority to sign for the Director proposals for such courses in ESMWT regions 8, 9, 10, 12, 13, and 14; and to A. C. Jewett authority to sign for the Director proposals for such courses in ESMWT regions 15 through 22.

T. H. Morgan will continue to have authority to sign for the Director proposals for courses in regions 1, 2, 3, 4, 5, 6, 7, and 11.

Director Case will continue to sign proposals for courses in any of the regions when circumstances make it desirable for him to do so.

Cordially yours,

J. W. Studebaker
Commissioner

FOR DEFENSE
BUY
UNITED
STATES
SAVINGS
BONDS
AND STAMPS

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Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

ENGINEERING, SCIENCE, AND MANAGEMENT WAR TRAINING

Regions and Regional Advisers

Regional Adviser	Address	Area for Supervision	Region Number
William C. White	Dean, College of Engineering Northeastern University Boston, Massachusetts	Maine, Massachusetts, New Hampshire, and Vermont	1
L. E. Seeley	Assoc. Prof. of Mech. Engrg. Yale University New Haven, Connecticut	Connecticut and Rhode Island	2
S. C. Hollister	Dean, College of Engineering Cornell University Ithaca, New York	New York State (except New York City and Long Island)	3
Albert B. Newman	Dean, School of Technology City College of the College of the City of New York New York, New York	New York City, Long Island and adjacent New York State to Poughkeepsie	4
A. R. Cullimore	President Newark College of Engineering Newark, New Jersey	Deleware and New Jersey	5
C. E. Lawall and Associate Adviser (Not yet appointed)	President West Virginia University Morgantown, West Virginia	Pennsylvania and West Virginia	6
S. S. Steinberg	Dean, College of Engineering University of Maryland College Park, Maryland	District of Columbia and Maryland	7
S. B. Earle	Dean, College of Engineering Clemson College Clemson, South Carolina	North Carolina, South Carolina, and Virginia	8
J. E. McDaniel	Director, Cooperative Dept. Georgia School of Technology Atlanta, Georgia	Alabama, Florida, Georgia and Mississippi	9
F. L. Wilkinson, Jr.	Dean, Speed Scientific School University of Louisville Louisville, Kentucky	Kentucky and Tennessee	10
C. E. MacQuigg	Dean, College of Engineering Ohio State University Columbus, Ohio	Ohio	11

Regional Adviser	Address	Area for Supervision	Region Number
H. B. Dirks	Dean, Division of Engineering Michigan State College Lansing, Michigan	Michigan	12
D. B. Prentice	President Rose Polytechnic Institute Terre Haute, Indiana	Indiana	13
H. T. Heald and	President Illinois Institute of Technology Chicago, Illinois	Illinois and Wisconsin	14
Associate Adviser F. O. Holt	Dean of the Extension Division University of Wisconsin Madison, Wisconsin		
H. O. Croft	Prof. of Mechanical Engineering University of Iowa Iowa City, Iowa	Iowa, Minnesota, Nebraska, North Dakota, and South Dakota	15
A. S. Langsdorf	Dean, School of Engineering Washington University St. Louis, Missouri	Arkansas, Kansas, Missouri and Oklahoma	16
W. R. Woolrich	Dean, College of Engineering University of Texas Austin, Texas	Louisiana, Texas (East of Pecos River)	17
M. F. Coolbaugh	President Colorado School of Mines Golden, Colorado	Colorado and Wyoming	18
R. L. Daugherty	Prof. of Mechanical Engineering California Institute of Tech. Pasadena, California	Arizona, New Mexico Southern California and Texas (West of Pecos River)	19
S. B. Morris	Dean, School of Engineering Stanford University, Stanford University, California	Northern California, Nevada and Utah	20
H. H. Langdon	Prof. of Mechanical Engineering State College of Washington Pullman, Washington	Idaho, Montana, Oregon and Washington	21

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Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

ENGINEERING, SCIENCE, AND MANAGEMENT WAR TRAINING

News Letter for Month Ending August 31, 1942

National Institute on Education and War Discusses ESMWT - At the National Institute on Education and the War, held at American University, Washington, D. C., August 28-31, ESMWT was discussed in several of the symposiums. The consensus of representatives of Federal agencies at the Institute was that more and more the colleges and universities will have to modify their programs to provide rapid training of men for the armed forces and women for industry, rather than education leading to degrees. Several spokesmen mentioned ESMWT as representative of the type of training likely to meet wartime personnel needs.

Outlook Bright for Women Trainees - Spokesmen for the Labor Division of the War Production Board have said, "Women in war industry should be looked upon not as a problem, but as a solution." Increasing stringencies are rapidly causing widespread acceptance of this view. The Standard Oil Company of California reports that women chemists trained in ESMDT courses at the University of California are succeeding on the job. The General Electric Company has employed about 300 women for drafting jobs and about 50 for jobs in their engineering departments. The American Telephone and Telegraph Company reports that it has more jobs for women who are qualified as engineering assistants than it can fill. The Lockheed Aircraft Corporation has been able to absorb all the women trained in one ESMDT course.

Excellent Placement of Women Trainees - More than 50 out of 61 women who completed engineering drawing and aircraft engineering drawing courses at the University of California recently have been placed, principally in the aircraft manufacturing industry. Only two of the trainees were placed in non-defense industries, and only one trainee who is of foreign extraction has not received employment offers.

Fundamentals of Radio Training Effective in South Carolina - Approximately 80 percent of those receiving ESMDT certificates at the University of South Carolina are now engaged in some phase of radio war work, according to a recent report from Professor Robert L. Sumwalt of that institution. The Army and the U. S. Civil Service are represented among the employers of this group, and ten of the women and older men who received radio telephone operators' licenses as a result of their training are replacing men called from commercial radio stations to the service of the country. While the replies to the questionnaire upon which Professor Sumwalt bases his report are incomplete, a number of interesting statements from trainees were received. The first woman to hold a job as a radio station control operator in the State was one of the trainees from this course.

New Field Representative Reports - R. D. Landon, Professor of Civil Engineering at the Southern Methodist University, joined the staff of ESMWT as a Field Representative on August 15th. Professor Landon, who has received the degrees M.S., and C.E., from the University of Cincinnati is a member of Tau Beta Pi and an associate member of the American Society of Civil Engineers. He has taught and conducted special studies in hydraulic and sanitary engineering, and has done research on the testing of materials.

Ninety-four Percent of Union College Trainees Employed - Professor Sayre of Union College, Schenectady, New York has recently forwarded a report showing that 770 out of the 817 trainees enrolled for the summer program were employed. The General Electric Company with 536 was the largest employer and the American Locomotive Company with 70 was second. Forty-four employees of the U. S. Government were enrolled. One hundred forty-five women were registered, constituting nearly 18 percent of the summer enrollment.

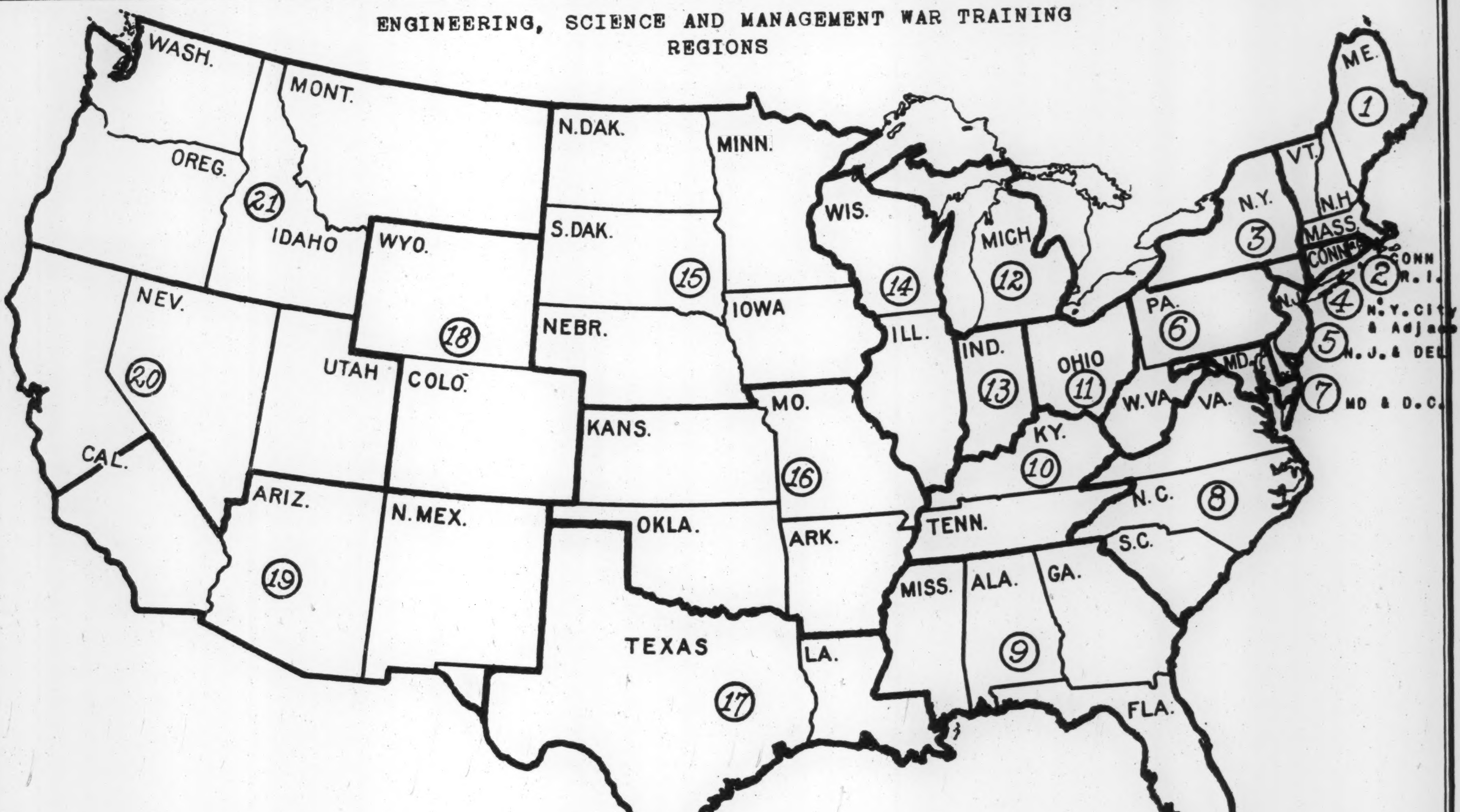
Elements of Engineering Trainees in Demand - "We have a fine group of young people in this course, which is nearing completion, and the industrial representatives in this area are clamoring to get the first pick of the trainees," writes Professor William J. Stevens, Institutional Representative at the Drexel Institute of Technology. Drexel Institute expects to place at least 75 percent of this group of trainees in war industry, he reports.

Industrialists Offer to Help Select Trainees - At a meeting of industrialists, and representatives of the Training Within Industry Branch of the War Manpower Commission and ESMWT in Boston, the facilities of the personnel departments of several employers were offered to assist in the selection of ESMWT trainees. Several representatives spoke of specific training needs in their organizations, and offers were made to pass on information about ESMWT and TWI to sub-contractors.

Geo W Case

George W. Case
Director

ENGINEERING, SCIENCE AND MANAGEMENT WAR TRAINING REGIONS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N.J
2 CONN R.I.
4 N.Y. City, L.I. & Adjacent N.Y.
5 N.J. & DEL
7 MD & D.C.

List of Invited Guests

Regional Advisers' Meeting

September 4 and 5,1942

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Dr. John W. Studebaker	U. S. Office of Education	Commissioner of Education
Dr. Edward C. Elliott	War Manpower Commission	Chief, Professional and Technical Personnel Division
Dr. Fred J. Kelly	U. S. Office of Education	Chief, Higher Education
[illegible]. C. F. Klinefelter	U. S. Office of Education	Assistant to Commissioner
Lt. Col. N. A. Burnell Mr. Philip Van Wyck Dr. J. R. Bangs	Federal Security Agency	Director, War Production Training Deputy Director, War Production Tr. Technical Consultant to Col.Burnell
Miss Mary Anderson Miss Bertha Nienburg	U. S. Department of Labor	Chief of the Women's Bureau Assistant Director, Women's Bureau
Mr. E. J. Stocking	U. S. Civil Service Comm.	Assistant Chief, Examining Board
Dr. D. H. Davenport	U. S. Department of Labor	Branch Chief, Bureau of Labor Statistics
Dr. Leonard Carmichael	National Roster of Scientific and Specialized Personnel	Director
Lt. Com. P. H. Winston	Selective Service System	Representative of Selective Service on War Manpower Commission
Major Fred H. Pumphrey	Office of Chief Signal Off. War Department	Curriculum Analysis and Coordinating Section
Captain M. W. Morehouse	Office of Chief of Ordnance Training Section	Civilian Personnel Training Division
Captain L. B. Tipton	U. S. Army and Department of Labor	Supervisor of Safety Training

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FEDERAL SECURITY AGENCY
U. S. OFFICE OF EDUCATION
WASHINGTON

Engineering, Science and
Management War Training

July 20, 1942

To: ESMWT Institutional Representatives and Regional Advisers

Subject: Report of Conference in Columbus, Ohio, Region 11, Training Teachers of Physics and Mathematics.

At the Regional Advisers' meeting in New York on June 30, 1942, the suggestion was made that items of information about new courses and other projects of interest conducted in the various regions might well be sent to Institutional Representatives and Regional Advisers in a news-letter from this office.

Pursuant to this suggestion, I am sending you the attached copy of a letter from Professor H. E. Nold, Institutional Representative, Ohio State University, to Dean C. E. MacQuigg, Regional Adviser for the region in which Ohio State University is located. This letter is a report of a conference held in the office of the Director of Education of Ohio, June 6, 1942, on the training of instructors of elementary mathematics and physics for the high schools.

You will note, from the results of the conference as listed by Professor Nold, that a refresher type of training is proposed and that the length of courses is considerably shorter than suggested in my letter of June 20 dealing with the subject "Courses for the Training of Teachers of Physics and Mathematics in High Schools and Colleges."

Very truly yours,

Geo W Case

George W. Case,
Director

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COPY

THE OHIO STATE UNIVERSITY
Columbus

July 8, 1942

C. E. MacQuigg, Regional Adviser
Engineering, Science and Management
War Training
Chemistry Building
Campus

Dear Dean MacQuigg:

On Monday, July 6, the committee to study the advisability of offering ESMWT courses for the training of high school teachers in mathematics and physics in the form of refresher courses, met in the office of State Director of Education, State Office Building, Columbus, Ohio, at 3 P. M.

The following were present: Prof. G. P. Cahoon, College of Education, Alva W. Smith, Department of Physics, C. R. Wylie, Department of Mathematics, H. E. Nold, Director of ESMWT and Messrs. H. J. Bowers and R. M. Garrison of the office of the State Director of Education.
The conference developed the following: (1) There is now a real shortage of mathematics and physics teachers in some high schools in Ohio. (2) The teacher turn-over in the high schools is greatest in the smaller schools where salaries are lowest. Consequently, the shortage is mainly appearing in such schools. (3) The Ohio Department of Education recognizes the necessity of meeting the shortage on an emergency basis during the war. (4) The Department is willing to grant temporary certificates to high school teachers who have at one time studied at least college algebra and trigonometry and have now taken a refresher course in these subjects in ESMWT or otherwise. (5) The Department is willing to grant similar certificates for physics teachers who at one time have taken at least one year of college physics and who have taken a similar course or courses. (6) I was unable to get a definite statement as to whether the Department would recognize such ESMWT refresher courses given in any and all recognized colleges of Ohio. The impression I got is that it would recognize such refresher courses given in any college in Ohio under ESMWT jurisdiction where there is demonstrated and recognized competent instruction and in the case of physics, adequate laboratory facilities. It should be remembered that this has not been definitely stated, but is an impression from the discussion. (7) There seemed to be a general agreement that it would be beyond the scope of the work of ESMWT to prepare high school teachers in mathematics and physics who had not at one time had the minimum of mathematics and/or physics mentioned above. (8) There was considerable discussion as to an incentive which might attract high school teachers to take such necessary refresher courses in mathematics or physics or both, either as a full time program during the three weeks period preceding the opening of school this Fall, or in part time night school after school opens.

It was pointed out that the teaching of mathematics and physics is not popular in the high schools and that the majority of teachers have not qualified themselves to teach these subjects. A great number of present high school teachers do not even have the credit for academic minors and hence, could not be trained by ESMWT. Also, it was pointed out that the fact that the courses are tuition free probably would not be sufficient incentive to have very many teachers enroll. Prof. Nold expressed the opinion that some propaganda work should be done emphasizing to the teachers the seriousness of the lack of mathematics and physics training in slowing up the efforts in war industries. He stated that he believed that with the right kind of publicity, teachers could be awakened to their responsibilities and that through them, more high school students could be encouraged to elect advanced algebra, trig and senior physics. (9) Possibility of two types of courses was discussed; (1) A three weeks full time program during August, and ending about one week before school opens in the Fall. There was considerable doubt expressed as to whether a sufficient group could be interested enough to come to the University. Prof. Cahoon and his associates in the College of Education, are giving this consideration now. (2) There was a discussion regarding a series of part time evening refresher courses in Columbus and other centers of Ohio, to begin about a week after school started in the Fall and to continue throughout the academic year. It was the concensus that such courses probably have a better chance of success than a full time program. (10) The question of academic credit for. ESMWT refresher courses in mathematics and physics is troublesome, inasmuch as these courses are refresher courses and, therefore, duplicate work already taken in college for which the teacher has already received academic credit. It seemed doubtful whether any college would be willing to grant what is actually duplicate credit. It was stated that from the point of view of the teachers, academic credit is decidedly desirable because of the importance to them of accumulating more and more college credits. Representatives of the State Director of Education Office did not seem to think that from the Department standpoint, the duplication of credit was objectionable.

The present status with regard to the Ohio State University is as follows: (a) We expect to determine within a few days whether it is deemed advisable to publicize in an attempt to get registrants for the three weeks full time course above referred to. (b) As we now see it, we shall definitely go ahead to plan a part time program of evening courses to commence in the Fall for Columbus and probably other centers in the territory assigned to the University.

Yours very truly,

/S/ H. E. Nold,
Institutional Representative,
ESMWT

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Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

ENGINEERING, SCIENCE, AND MANAGEMENT DEFENSE TRAINING

Minutes of the Tenth Meeting of the Regional Advisers

New York, N.Y., June 29 and 30, 1942

The tenth meeting of the Regional Advisers for Engineering, Science, and Management Defense Training was held in New York, N.Y., on June 29 and 30. It was in two parts: (A) a joint meeting with the National Advisory Comittee, which was also attended by representatives from industry and governmental agencies; and (B) a meeting of the Regional Advisers.

A. JOINT MEETING WITH NATIONAL ADVISORY COMMITTEE

The meeting was attended by all the Regional Advisers and Dean Earle, Regional Adviser elect for Region 8; by all members of the National Advisory Committee except Dr. Bishop, Dean Gilchrist, and Dean Griffin; by Messrs. Seaton, Case and Armsby of the ESMDT staff; and by the representatives of industry, government, and educational institutions named below:

Industrial Representatives

Name	Company	Position
Charles E. Wilson	General Electric Company	President
H. A. Winne	" " "	Vice President
M. M. Boring	" " "	Asst. Vice President
L. E. Clover	" " "	Asst. to the Asst. Vice President
C. W. Cole	The Curtis Wright Corporation	Engineering Personnel Supervisor
W. A. Hughes	American Telephone & Telegraph Co.	Asst. Vice President
D. B. Bridgman	" " " " "	
Albert Sobey	General Motors Corporation	Director, General Motors Institute
A. M. Rupke	Bethlehem Steel Company	Manager of Training
C. T. Reid	Douglas Aircraft Corporation	Director of Education
Randall Irwin	Lockheed Aircraft Corporation	Industrial Relations Director
R. G. Andrews	The Glenn L. Martin Company	Director of Engineering Personnel
John G. Pew, Jr.	The Sun Shipbuilding & Dry Dock Co.	Vice President
George B. Thom	" " " " " " "	Vice President
A. A. Norton	" " " " " " "	Supt. Hull Construction
A. E. Marshall	Rumford Chemical Company	President

Governmental Representatives

Name	Government Agency	Position
Lt. Col. N. A. Burnell	Federal Security Agency	Director of Defense Trg.
Philip Van Wyck	" " "	Deputy Director of Defense Training
J. R. Bangs	" " "	Technical Consultant to Colonel Burnell

Governmental Representatives (Continued)

Name	Government Agency	Position
Dr. D. H. Davenport	Bureau of Labor Statistics, Department of Labor	Branch Chief
Dr. A. M. Greene	War Production Board	Special Consultant to the Chairman
E. J. Stocking	U.S. Civil Service Commission	Asst. Chief, Examining Division
Lt. Col. C. Roy Dickinson	Selective Service System	Liaison Officer
Maj. Fred H. Pumphrey	Office of Chief Signal Officer, War Department	Curriculum Analysis and Coordinating Sec.
Captain K. J. Soderberg	Office of the Chief of Ordnance, Training Section	Civilian Personnel Trg. Division
Captain M. W. Morehouse	Office of the Chief of Ordnance, Training Section	Civilian Personnel Trg. Division
Captain L. B. Tipton	U.S. Army and Dept. of Labor	Supervisor of Safet[illegible] Training
Captain K. A. Laplant	Corps Area Signal Officer	Enlisted Personnel Officer
S. P. Harman	Regional Labor Supply Committee	Acting Chairman
Lt. Com. L. H. Ordway	U. S. Navy, 3d District Civilian Personnel Office	
Geo. P. Berner	U. S. Employment Service	
Maj. J. L. Wittlaufer	Manpower Division, Service of Supply, Civilian Personnel Section	
James E. Rossell	U. S. Civil Service Commission	District Manager
Ellis S. Boynton	" " " "	Recruiting Specialist

Educational Institution Representatives

Name	Institution	Position
James M. Robert	Tulane University	Dean of Engrg. - Inst. Rep.
R. L. Townsend	Massachusetts Inst. of Technology	
M. P. O'Brien	University of California	Inst. Rep.
F. M. Dawson	University of Iowa	Dean of Engrg. - Inst. Rep.
Warren Raeder	University of Colorado	Inst. Rep.
Joseph Weil	University of Florida	Dean of Engrg. - Inst. Rep.
J. E. Hannum	Alabama Polytechnic Institute	Asst. Dean of Engrg. - Inst. Rep.
W. Harold Taylor	University of Alabama	Inst. Rep.
J. H. Lampe	University of Connecticut	Dean of Engrg. - Inst. Rep.
N. W. Dougherty	University of Tennessee	Dean of Engrg. - Inst. Rep.

1. Present Status of Training Program on College Level. The present status of the program appears statistically in the Summary of Status of Program on June 20, 1942, the Report for Month Ending May 31, 1942 (ESMDT-Misc. 323), and the Supplement to List of Approved Courses (ESMDT-Misc. 323), and the Supplement to List of Approved Courses (ESMDT-Misc. 324), all of which were included in the folders for the meeting.

I. Enrollments and Encumbrances to Date - Deans Potter, Seaton, and Case discussed these statistics briefly, bringing out the following additional items of information:

(A) A recent study showed that about 64% of all trainees are already employed in war industries and an additional 29% expect to enter such employment on completion of their training.

(B) In the past year the number of women trainees has increased from 800 to 27,000, and women now constitute about 7% of the total trainees.

(C) The total number of trainees in the armed forces is about 9,000. listed men are no longer being trained.

II. Summer program -

(A) Full-time Ultra-high Frequency Courses - Mr. Armsby presented a statement from Dean Crothers concerning the courses in Ultra-high Frequency Techniques for Army and Navy officers, reporting that commissions were offered to 404 of the 1000 electrical engineering graduates who applied. The course is in operation at 22 institutions.

(B) Full-time Courses for High School Graduates - Mr. Armsby presented a statement from Dean Crothers reporting that approval of such courses was delayed until after the supplementary appropriation was passed, which resulted in a sharp reduction in the number of classes actually organized as compared to the number planned. The enrollment in these courses will be less than last summer.

2. Appropriation for Fiscal 1943. Dean Potter reported that an appropriation of $30,000,000 for a continuation of the ESMDT program through fiscal 1943 has been approved by both houses of Congress. (Note - subsequent to the meeting this amount was appropriated.)

3. Statements by Industrialists. The industrial representatives present were asked to present statements following approximately the outline shown below:

(a) Experience with ESMDT program and suggestions for improvement.

(b) Needs during 1942-43 for engineers, chemists, physicists, and production supervisors.

(c) Company policies with respect to deferment of men of draft age.

(d) Company policies with respect to employment of women in scientific, technical, and managerial positions.

All of the industrial representatives present responded to this request, and also answered many questions asked by the Advisory Committee members and Regional Advisers. (Note - Abstracts of the remarks of the industrial representatives will be mimeographed and distributed later.) The main points brought out in these discussions were:

(a) The ESMDT program is rendering a valuable service to industry, particularly in the in-service courses. It was repeatedly emphasized that the greatest need for improvement in the program is for improved coordination between the colleges and industry, and for less competition between the colleges. Courses should be planned in cooperation with industry to serve definite needs. A particularly hopeful development is the practice of some companies of using the portion of Federal contracts available for training to pay the wages of trainees while enrolled in full-time ESMDT courses. Another is the growing trend toward breaking down technical jobs into simpler units which can be performed by persons with such training as can be given under ESMDT.

(b) The saturation point for technically trained men has not been reached. War industries still need large numbers of technically trained college graduates, and the need for persons with training such as is afforded by ESMDT courses and vocational training courses is expected to be greater next year than it is now. One speaker expressed the hope that something like ESMDT might be made permanent.

(c) The general policy of the companies represented is to ask for deferment for technically trained personnel who are engaged in war work, and little difficulty was reported in obtaining such deferments.

(d) The companies represented are using women in technical and managerial positions, and expect to use many more, although labor laws in some states will create difficulties in their use in supervisory positions.

3a. Statement by Dr. D. H. Davenport, Branch Chief, Bureau of Labor Statistics, Department of Labor. Dr. Davenport stated that studies of the Bureau in attempting to interpret war contracts in terms of labor requirements lead them to believe that by the end of 1943 there will be about 20 million persons employed in war industries, as compared to 11 million now so employed. The planned expansion of the armed forces will remove large numbers of young men from industry, who will have to be replaced by older men and by women. It is expected that 5 million women not now in the labor market will be employed in war industries by the end of 1943. Many new plants will be built and new industrial areas will spring up, since in many of the present industrial areas the labor supply is exhausted and public utilities are already overtaxed. It is evident, therefore, that tremendous training needs will exist, particularly for the training of women, and the Bureau considers that it is absolutely essential that ESMDT be continued and expanded.

4a. How can the Effectiveness of Available Engineering Personnel be Increased? There was no discussion under this item, except such as was included in the discussion of other items on the agenda.

4b. How Can Concrete Evidence be Gathered as to the Effect of the EDT-ESMDT Programs on the National War Effort? Discussion on this question brought out that it will probably be impossible to secure definite numerical data as to the improvement of individuals due to ESMDT courses, but that it should be possible to obtain definite qualitative statements from industrial executives as to benefits derived by their companies from the program.

B. MEETING OF REGIONAL ADVISERS

5. Plans for Fiscal 1943

(a) General policies - Dean Case announced that the name of the program for the fiscal year 1942-43 will be Engineering, Science, and Management War Training.

Discussion of general policies brought out that:

1. The major emphasis during 1942-43 will be on the training of women and older men, but it would be undesirable to entirely eliminate men of draft age.

2. Training for officers of the Army and Navy will apparently continue on about the present scale, but it is expected that training for enlisted personnel will be done by direct contract between the colleges and the armed services.

3. The Regional Advisers should be advisers and not administrators. If local coordinators are needed, they should be employed at the request of the institution to be served.

4. It will be of value to the program for Regional Advisers to exchange information with each other as to particularly successful courses and procedures.

(b) Apportionment of Funds - Dean Case reported that the funds for the ESMWT program have not been allocated between the various types of training under the program, but may be used in such proportions as will make the maximum contribution to the war effort.

(c) Training of Women - The discussion on this topic brought out that:

1. Women will be needed in greatly increased numbers by industry.

2. On the average, women will need more training than men, and of a somewhat different kind, because of less previous training and experience.

3. It will be necessary to inform properly qualified women of the needs for their services in the war effort and of the sorts of work for which they can reasonably expect to prepare themselves.

4. The purposes of the program will be best served if courses for the training of women are set up at the direct request of industry, and if representatives of the industries being served pass on the employability of applicants.

5. College and university personnel divisions are in a position to render significant aid in recruiting women trainees.

(d) Revised Procedures - Mr. Armsby outlined briefly the major changes in procedures anticipated under the ESMWT program. They are:

A. Educational supervision is to be listed as a sub-item under instruction.
B. Form 8 will be a single sheet, and is to be filled out by every student in every class. The institution may keep a copy of this form if it desires, but will not be required to do so.
C. The monthly enrollment form will be greatly simplified, and a new form will be used for a complete report on all sections of a course after their completion. This form will ask for information on placement of trainees.
D. Form 1 is considered as a bid while Form 5 is a contract, and should therefore be complete. The two forms will be almost duplicates of each other, for easier transfer of items from Form 1 to Form 5. The four-week limit on sections under one code number will be retained, but proposals for repetitions of a course beyond that time may be made by letter up to a maximum of three months. The letter will be considered as a preliminary proposal, will receive a new code number, and will require a separate final proposal.

E. The preliminary proposal will no longer call for "Make, size, and kind" under new equipment, but instead will request "sufficient description to identify need with course."

F. An Administrative Budget covering a period of not to exceed five months will be allocated to each institution, based on its anticipated program and subject to change if local training needs change during the period covered. Administrative costs will then be pro-rated as a definite sum per section on Forms 1 and 5, appearing in these forms only on the budget sheets.

G. A Revolving Fund will be provided covering anticipated expenses for not to exceed two months' operations. This money will be sent as soon as the proposal is approved, and used to meet costs of approved courses. Institutions will be asked to so plan their work that substantially all of this fund will be used up at the end of the fiscal year. Provision for accomplishing this will be made on the final proposal blank, a provision which will also permit the use of unexpended and unencumbered funds held by the institution.

It is hoped that these new procedures will be approved, since it is believed that they will greatly expedite the work, both for the institutions and for the staff of the Washington office.

6. Minutes of Meeting of April 17-18, 1942. The minutes of the ninth meeting had previously been issued as ESMDT-Misc. 307, and were also included in the folders for the meeting. They were presented for additions or changes, and, after a brief discussion of two items, were declared approved.

It was agreed that in the future each Regional Adviser will be sent enough copies of the minutes of the Regional Advisers' meetings so that he can send one to each institution in his region with appropriate comments.

7. Discussion of Joint Meeting with National Advisory Committee.

(a) Report of Chairman of National Advisory Committee - Dean Potter reported briefly on the meeting of the National Advisory Committee which followed the joint meeting of the committee with the Regional Advisers. His report, and the discussion which followed, brought out that:

1. Those present considered the joint meeting, particularly the participation by industrialists, of distinct value.

2. The statements of the industrialists do not indicate as acute a shortage of fully trained engineers as has been indicated in previous estimates, but make it apparent that the needs for ESMWT training will continue and will expand.

3. It is essential that ESMWT instruction be linked directly with the needs of war industries.

4. Rivalry between institutions, and the offering of courses for the sake of building up enrollments, have no place in the program.

5. The Army Specialist Corps will probably require much training of the sort given by ESMWT.

6. Industry should be encouraged to a more general adoption of the practice, now in effect in some companies, of using the portion of funds in Federal contracts available for training to pay wages of trainees while enrolled in full-time ESMWT courses.

7. The small industries must not be overlooked in setting up training programs. Their needs are just as vital as those of the large companies, and they are less able to provide their own training programs.

8. Industry should be urged to anticipate training needs, particularly for women and older men to replace the young men who will be called to service in the armed forces.

8. General Plans and Procedures for Fiscal 1943.

(a) Regional Meetings - The value of fairly frequent regional meetings was stressed, as affording opportunity for the Regional Adviser to pass on to the institutions information gained at meetings of the Regional Advisers, and for the exchange of ideas and information between institutions; and also for their inspirational value to the Institutional Representatives.

It was suggested that much good might result from attendance of Regional Advisers at regional meetings other than their own, for the exchange of ideas. Dean Case stated that such visits would be entirely proper if made upon the invitation of the host Adviser, and might be charged to the budget of either the guest or the host Adviser.

(b) Course Proposals - The following points were brought out:

1. Institutions are requested to make as careful estimates of costs of courses as possible, with the assurance that they will be protected in the case of underestimates.

2. It was requested that the Director investigate the needs of the Signal Corps and the Air Corps for ESMWT training, and the place to be occupied in the program by the National Association of Broadcasters; and the needs for training in Safety Engineering.

3. Courses in meteorology and navigation cannot be approved under ESMWT.

4. It is proper to train teachers in subject matter but not in educational methods. Academic credit may be given to trainees in such courses unless they are enrolled as regular students in the summer session.

5. It may be necessary to include some elementary mathematics in certain ESMWT courses for women and older men, but young men just out of high school should not be admitted to ESMWT engineering and science courses unless they have had at least two years of mathematics.

(c) Publicity - Institutions are expected to send copies of their publicity material to the Regional Adviser, not for his approval or disapproval, but for his information. If a central clearing house of information is necessary in a region, it should be established by the cooperation of the institutions.

It was agreed that it would be satisfactory to all concerned for the weekly report from the Washington office to be changed to a monthly report.

It is proper for institutions to advertise ESMWT courses in the press, provided the advertising is properly phrased.

(d) Application Blanks - Institutions should be cautioned against the inclusion in application blanks of questions relative to race, color, creed, or other minority groups, in order to avoid any accusations of discrimination. Such information can be secured in personal interviews, if needed.

(e) Employment Records of Trainees - It was emphasized that it is important for institutions to follow up on trainees and secure as complete employment records as possible, to furnish much needed information to the Washington office. Information should be given in terms of benefit to the war effort **rather** than in terms of salary increases for individuals.

(f) Other General Plans and Procedures - Dean Case stated that there are now three Principal Specialists in the Washington office, each being responsible for approving courses in a certain area. Mr. Jewett, in charge of the western area, will be asked to send extra authorization sheets by air mail to institutions in his area, followed by the proposal and the regular approval sheet by regular mail.

Until the new ESMWT forms are available, preliminary and final proposals may be submitted on ESMDT forms.

It was recommended that the U.S. Office of Education request the various state teachers associations to have the facts concerning the needs for training in mathematics and physics, and the help which ESMWT can give in filling them, presented by some competent person at their state meetings.

Institutions may find it desirable to engage a permanent staff of instructors for ESMWT courses. The program should be planned in general, but kept flexible enough to allow adjustment to changing needs. Only short, intensive courses leading directly to war work are to be given, but such courses may be repeated if the demand continues, or new courses may take their place. Proposals may be sent in some months in advance of the proposed starting date if desired.

9. Other Matters for Consideration. Dean Potter reported that strong efforts are being made to impress upon Selective Service officials and upon the War Manpower Commission the importance of permitting the consideration of engineering students for deferment at an earlier period in their college curriculum than that covered by present directives.

Dean Case reported that Mr. C. R. Bailey of the Washington staff is handling priority requests and is working on a plan by which action on such requests may be greatly expedited. Only equipment actually needed should be ordered, and wherever possible non-critical materials should be used. It is believed that the Washington office will be able to help in the procurement of typewriters and also in obtaining recapped tires where needed by ESMWT institutional representatives, teachers, and supervisors.

It was requested that the Director issue definite directives on priorities, gas rationing, and recapped tires and air travel.

President Heald described courses being organized in Chicago designed to prepare persons displaced from their customary occupations (e.g., salesmen) for work as production supervisors and expediters in war industries. It is evident that a need for such training exists on both the college and the vocational levels.

President Heald also reported a useful procedure whereby course titles are being coordinated with occupation titles used by the U.S. Employment Service. This procedure is proving useful to the institutions concerned in coordinating their training with training needs.

It was requested that an organization chart of the Washington office be sent to the Regional Advisers.

It was voted unanimously that a resolution be sent to Dean Seaton and spread upon the minutes expressing the appreciation of the Regional Advisers for his services to the program. The following resolution was sent to Dean Seaton on July 2, 1942:

> "Mindful of the devoted and effective service rendered by our colleague, Roy Andrew Seaton, as Director of the EDT and ESMDT programs of the U.S. Office of Education, the Regional Advisers of these programs assembled in conference at the Engineering Societies Building in New York on Tuesday, June 30, 1942, desire to record their sincere appreciation and gratitude for his stimulating leadership during the past two years."

It was voted unanimously that letters of appreciation be sent to the American Society of Civil Engineers for the use of their Board Room for the meeting, and to Dean Saville for making the arrangements for the group luncheon. These letters were sent by the secretary on July 6.

10. Time and Place of Next Meeting. It was agreed that the next meeting of the Regional Advisers will be held in Washington on Friday and Saturday, September 4 and 5, 1942.

Respectfully submitted,

Henry H Armsby

Henry P. Armsby
Field Coordinator
Engineering, Science, and
Management Defense Training

ESMWT-Misc. 29

Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

ENGINEERING, SCIENCE, AND MANAGEMENT WAR TRAINING

STATEMENTS BY INDUSTRIAL REPRESENTATIVES

Presented at Joint Meeting of National Advisory Committee and Regional Advisers

New York, N. Y., June 29, 1942

The industrial representatives in attendance at the joint meeting of the National Advisory Committee and the Regional Advisers of ESMWT, held in New York City on June 29, 1942, were asked to present statements following approximately the outline shown below:

(a) Experience with ESMDT program and suggestions for improvement.

(b) Needs during 1942-43 for engineers, chemists, physicists, and production supervisors.

(c) Company policies with respect to deferment of men of draft age.

(d) Company policies with respect to employment of women in scientific, technical and managerial positions.

This pamphlet presents a summary of their statements and of the discussions which accompanied them, and also summaries of the remarks presented by Dr. Donald H. Davenport, Branch Chief, Bureau of Labor Statistics, U. S. Department of Labor; and by Lt. Col. C. R. Dickinson, Liaison Officer, U. S. Selective Service Commission.

B-1-b

MR. RANDALL IRWIN
INDUSTRIAL RELATIONS DIRECTOR
LOCKHEED AIRCRAFT CORPORATION

Before I attempt to venture any criticism, I would like to say that if there has been any doubt about the universities rising to the emergency it has been entirely dispelled. The ESMDT program has gone even beyond our hopes. (Mentioned that even before the ESMDT program they called on Cal. Tech. for training and their response was an indication as to how the universities would respond to this kind of service.) We have been interested in both kinds of training — both in-service and pre-service. Examples of specific needs that are being met are shown in 66 engineering classes that have been established at our specific request to meet specific needs, and we have hundreds of employees participating in other courses at the University of California, Cal. Tech. and the University of Southern California. There are many values of this program that have come to light — for example, we have often overlooked qualifications in employees that would enable them to carry more responsibility and these classes have helped us to uncover them. The classes also have helped us to adapt to our use engineers from other fields. Further, we have found the classes of great value in broadening the knowledge of specialized engineers, through giving them supplementary training in related fields of engineering. As for pre-production courses, we have a number of classes established at our request. One class included 60 employees selected from our shop and placed in full-time training — men who had capacity beyond routine work. Another example is that of 85 employees selected from the shop for full-time drafting training. In both of these instances, instructional material and instructors were furnished by Lockheed to assist in the training. (Mentioned class for women and said they were able to absorb all the trainees in that class.)

We sense a danger in various universities competing for biggest enrollment in these classes. In doing this it is possible to over-emphasize the pre-employment. The problem is not to get someone who can do a routine job — the problem is to get people for higher-grade positions. The greatest need that we see is continued and improved coordination between industries and the universities and a little closer coordination between institutions engaged in this program. In this connection, we feel that industry has a definite responsibility in determining the actual number of students to be trained in each subject — there is a responsibility to draw up the specifications of individuals to be enrolled in those subjects. Many industries are in position to assist in the preparation of the course content or to prepare it.

As to other matters I might mention very briefly that our anticipated needs are rather indefinite — will depend on what turn things take. There is no great need for physicists and chemists, and as for engineering and management, we are developing men for those positions from within our organization, so the greatest need is for supplementary training.

As for Selective Service, our policy is to ask for deferment of those persons who have had two or more years of training in a field to help meet a specific need, and only for those people we consider more valuable in industry than in the armed forces. Unless there is some unusual need we never ask for deferment of a person with less than six months of training in his line of work.

Mr. Randall Irwin: (Continued)

As to women, we are completely breaking down the lines between sexes, color, etc. However, in California there is an eight-hour law for women which reduces the possibility of putting them in positions of supervisors, etc., since those positions very often require over-time.

Dean Potter: (Thanked Mr. Irwin and told the Committee that Mr. Irwin had been very helpful in the beginning of the program.) Then you feel that so far as pre-employment classes are concerned, we have reached a point in supply of technical people that should not be stressed, and that we should stress in-service training?

Mr. Irwin: Yes.

Dean Seaton: Would it be your idea that that would hold throughout the industries generally, or just in your particular industry?

Mr. Irwin: I spoke only of the situation in Southern California aircraft.

MR. C. T. REID
DIRECTOR OF EDUCATION
DOUGLAS AIRCRAFT CORPORATION

Our own experience in the training program for Douglas checks with what Mr. Irwin has said. I thinkthough that we may misunderstand the point about pre-employment. It isn't so much that we should avoid okays for pre-employment classes but we should make sure they are pinned right down to a definite need. If we gage this to the specific need of a job that exists now or a job in prospect, -- (and there is a new point in that connection) it serves to further pull us out of the "No-Man's land," between pre-employment and those already employed. That comes about by experiments under which we set up pre-production classes.

Dean Potter: Somebody told me that your industry has been hiring a certain number of people and paying them and sending them to classes at the University of California.

Mr. Reid: Yes, we are beginning an experiment in that line and we find it very satisfactory. We are seriously considering making it the general scheme for all levels of training for the duration. It means simply that we hire a man that looks like a good prospect, particularly as a tool engineer or production engineer and we make arrangements with Dr. Woods and Professor O'Brien for selected closed groups. We want to train in the tool engineering fields alone two thousand men including tool, jig and fixture designers; tool planners, and tool draftsmen. We hope to be able to accommodate them through ESMDT, giving them 8 hours a day for six days per week.

President Heald: Isn't that pre-employment?

Mr. Reid: Yes, to us it is, but school authorities consider it supplementary work because the people are actually on the industry's payroll. It is definitely full-time.

Dean Potter: Do you think we are reaching the saturation point in the training for your industry?

Mr. Reid: Six months ago I would have said "yes," but now we seem to need more and more. Development of new models and extensive redesigning of existing models for high speed interchangeable production in widely separated plants seems to be the explanation.

President Doherty: Do you look to ESMDT primarily to get additions to your engineering staff, or to your colleges for graduates?

Mr. Reid: We habitually look to the colleges for new recruitment. However, the present discussion is about an exception. It isn't strictly correct to call these tooling men "engineers" until they complete full rounded engineering education. Nevertheless, by taking ESMDT courses they become specialists in certain phases of engineering and therefore it is appropriate for ESMDT to aid in giving them that training.

President Doherty: I suggest that it would be most helpful if a distinction be drawn between full-fledged engineers and those on the sub-professional level.

Mr. Reid: Excellent point.

Dean Potter: This program is not intended to educate people in the broad way. Have you reached a saturation point on full-fledged engineers?

Mr. Reid: Undoubtedly we have not. The need will continue for an indefinite time.

Dean Potter: How about the need for ESMDT, will that also keep on growing?

Mr. Reid: I can't really feel that it will. We are dealing in such large figures and now it seems to me that it must inevitably drop. I would say that ESMDT would still continue to find its best field in training - - well, for example, stress analysis for a graduate engineer who happens to need particular training in that and who outside of working hours might study that subject under ESMDT. I should like to see some arrangement like ESMDT outlive the emergency. I think the Office of Education should take steps toward making this type of tuition free, university extension work, available permanently.

In the Los Angeles area, our three older plants work with three of the sponsoring institutions - the University of California, Cal. Tech. and University of Southern California. We have three additional plants in the middle west. For the one at Tulsa, Oklahoma, we can use the University of Tulsa and perhaps Oklahoma A. & M. The latter university undoubtedly can serve our new plant at Oklahoma City. We also are just about ready to break ground for a new plant in Chicago - there we will have the University of Chicago and Northwestern.

In each area, where new airplanes are being developed, ESMDT services are invaluable in giving our men specialized training in Detail Design, Hydraulic Systems, Control System, Power Plant Installation, etc. - things that good mechanical engineers are readily adapted to. Air conditioning has quite a place. Production Management has made demands upon

Mr. Reid: (continued)
ESMDT for some time back. I think these demands will increase because in building new plants, we are spreading out our talent very thin.

We, in industry, are eager to assume our burden in connection with this training. We should like to organize each training class to match our need and say to an ESMDT supervisor, "Will you take this group of people, with this instructor, etc., and put on this training?"

President Hotchkiss: (Asks what the qualifications for trainees are in these pre-employment courses.)

Mr. Reid: Well, we have set our standards pretty high and will perhaps have to come down a little. (Gave for example one course the prerequisites for which were two years of college, including mathematics, etc. Mentioned an experiment along that line concerning a course for women at the University of California - all college graduates.)

Dean Hammond: (Asks whether his company or industry has set a quota on the number of full-fledged engineering graduates they hope to obtain during the next twelve months.)

Mr. Reid: No, we are going to take all we can get.

Dean Hammond: How seriously would your industry be handicapped if you got only a few?

Mr. Reid: Well, we realize that we are going to get only a few and are going to be greatly handicapped. We will just have to upgrade more employees, and do more developing from within.

As a final point of information, I would like to state that we have a great deal of trouble with interruptions on the part of ESMDT student employees who attend classes voluntarily, where it has been necessary to transfer an employee to another shift or move him to another plant due to scarcity of talent. We have a lot of ambitious young men attending these classes on their own time who become very much discouraged when they are interrupted in this way so we are trying another plan - trying to so closely correlate the study of a given subject in our three plant areas in California, that a man can change from one class to another without losing out.

MR. CHARLES E. WILSON
PRESIDENT
GENERAL ELECTRIC COMPANY

I am going to ask someone else to make a statement for me as I am having a little difficulty with my voice. We are tremendously interested in this program and we are worried about the supply, naturally in an industry like ours. I have read over the letter that we had from you on this subject, and it seems to me that our own difficulties are set forth pretty well in the answer that we have given to that.

MR. H. A. WINNE
VICE PRESIDENT
GENERAL ELECTRIC COMPANY

The General Electric Company is tremendously concerned regarding the problem of protecting industry for the duration of the War in the matter of an adequate technical personnel, and considers it highly advisable that steps be taken to insure industry a proper proportion of the technical personnel graduating from the various technical schools during the War period.

As requested by Mr. R. A. Seaton in his June 5 letter we give the following statement:

A. Experiences of your company with the ESMDT program and your suggestions for its improvement.

The General Electric Company is supplying approximately 40 teachers in the Schenectady District alone to assist in carrying forward this program, and while we might not have benefited directly to the same degree as other concerns who do not normally carry on such an extensive educational program as does the General Electric Company, we have employed a number who have participated in these ESMDT courses.

B. Anticipated needs of your company during the fiscal year 1942-43 for engineers, chemists, physicists and production supervisors.

Our anticipated needs are approximately 700 men in these classifications for the year 1942-1943. We could use a much larger number, but particularly in the testing of equipment we have trained or are training approximately 1,000 non-technical men and women for positions which would normally be filled by technical men. Of the 700 required approximately 90% are for engineers (mechanical and electrical 50% each), and the remaining 10% for chemists, physicists, and other types of technically trained people.

C. Policies of your company with respect to requesting deferment of employees of draft age.

We have requested military deferment for all technical graduates in the Testing Department and the Engineering Department and for technical graduates located in other departments where they have been employed on war production. Approximately 600 Reserve Officers, mostly technically trained, have left the Company for active service. This has been accomplished largely through the transfer of technically trained employees from civilian to war jobs within the Company, with some assistance from the recruiting of engineers from non-war jobs outside the Company. Thus far our requests for deferments have been honored with one single exception.

D. Policies of your company with respect to employment of women in scientific, technical, and managerial positions.

We have already placed a few (approximately 50) women trained in science and mathematics in the Engineering Departments with some degree of success. These young ladies are not engineers, however, and lack from a

Mr. Winne: (continued)
practical viewpoint the ability to do responsible engineering work. In order to strengthen the practical background of such people we are engaging from the colleges for our Testing Department a number of young ladies who have had a substantial background in mathematics and science, with the expectation that with a few months of practical work in the shop, together with a survey course in engineering, they can be transferred to various sections of our Engineering Departments, and believe that they will then be able to help our engineering effort. In the drafting rooms of our engineering department we have trained and placed approxmately 300 women.

Industry, specifically the General Electric Company, has been called upon to solve many intricate problems in connection with equipment for military and naval service, and it has undertaken to design and manufacture a wide variety of equipment for combat service. Further, it is being confronted from day to day with new problems and new equipment of a highly technical nature which can be carried through successfully only with adequate technical assistance. We are highly dependent upon technical graduates fresh from school to test this equipment, and many of these men are trained for non-combatant and field service for the Army and Navy. Looking ahead for the next two years, industry must obtain a reasonable proportion of the technical graduates from the schools, if it is to carry through its war program successfully.

Dean Potter: (In respect to deferment asked if his policy applied to people who have had the ordinary four-year technical course.)

Mr. Winne: Yes. (Said whole statement referred only to technically trained people.)

Dean Hammond: Does that apply to graduates you have employed quite recently, that is, within the last two or three years?

Mr. Winne: Yes. We feel that recent graduates are of immediate use to us.

In respect to future needs our experience has been much the same as that mentioned by Mr. Reid. We believe there would be a slackening off but that hasn't proven to be the case. The demand for increased volume and the continual demands for new devices, etc., in our various departments seems to be insatiable. We are continually losing men to the service. Of course, the Reserve Officer situation has hit us very hard. We have lost between six and seven hundred and there are less than a hundred with us at the present time. Other engineers are being lost to various branches of the Army and Navy, so that we are still in need of 4-year technical graduates to replace those who leave.

Dean Potter: Then, you don't think the need would be diminished in 1943-44?

Mr. Winne: A year or so ago we might have said "Yes," but now I would hesitate to say that it would be diminished -- so many new demands are coming along.

Dean Potter: Of course, that refers largely to fully trained engineers. Are you making use of ESMDT in the training of the women you spoke of?

Mr. Winne: We have not attempted to use the ESMDT training program for these women as the first of these people has just arrived, and it is our plan to simply put them through our practical experience program and this fall arrange for a course which will give them some of the fundamentals of engineering.

We have had experience with quite a number of girls who have gone through technical schools and find that they lacked practical knowledge. We hope that our training course will give them a practical slant on engineering problems, so that they will become very useful.

Dean Potter: Can you or Mr. Boring tell us in which way the ESMDT could be of most use to you?

MR. M. M. BORING
ASS'T. VICE PRESIDENT
GENERAL ELECTRIC COMPANY

From our point of view there are really no vital changes necessary in the ESMDT program. Possibly this is so because we have had much to do with the organization of courses in our vicinity and have supplied a majority of the teachers. We do find that the ESMDT drafting courses and others make an ideal source of supply for our own vestibule training.

Dean Potter: Have you any frank criticisms or suggestions?

Mr. Boring: Courses should be given when there is a particular need in that local area and the courses should be directed toward that end. During one week I received 22 letters from colleges saying that they had trained a group of young men in drafting and asked me what they should do with them. In order to obtain the results of these courses, I asked for samples of the work done by these young men. One college sent samples of the work of each student and I found that the drawings submitted did not have a single dimension. They were without question simply copies of other drawings. That sort of thing is of no particular value. In my opinion courses should be limited to the needs of the local area.

Dean Potter: Mr. Boring has been very helpful to us in planning the program.

Lt. Col. Burnell: How many graduates do your ordinarily get each year?

Mr. Winne: Last year we got 700. Year before that 500, and the year before that 300. We should like to get another 700 this year.

Mr. Boring: (Asked about division of graduates between industry and armed forces.)

Dean Potter: Well, about one-third to Army, one-third to Navy, and one-third to industry. Do you think one-third will fill the need of industry?

Mr. Boring: No. Industry could absorb at least three times that many.

MR. A. A. NORTON
SUPERINTENDENT HULL CONSTRUCTION
THE SUN SHIPBUILDING AND DRY DOCK COMPANY

(Not edited by Mr. Norton)

I should like to say just a few words about the type of ESMDT program we have had in Chester. I believe that we have had an ideal program that has functioned almost perfectly. Possibly within a week after your program was begun Mr. Spivey came down to our plant. ESMDT was way out ahead of the vocational program and it was no time before we had over 400 students. Our enrollment has kept up constantly. They not only performed that function, but advised us to a large extent on our vocational program. It was all very helpful. (Says that he believes that in his own plant they have reached the peak of fully trained engineers.) We are expanding greatly and are putting an addition to our plant where we propose to hire 8,000 Negroes, and we have got to try to convert these well-educated men into engineers. There is a lot of quick short training necessary on the vocational level. It seems to me a shame that we cannot approach some of the borderline training. By borderline training, I mean blueprint reading, short, quick mechanical courses preceding the blueprint reading. Of course, all those things could be done by the vocational group if they had the right type of instructors.

Lt. Col. Burnell: (Says that between the two programs we certainly should be able to meet his needs.)

Mr. Norton: We have had the finest cooperation between ESMDT and the Vocational group in our area.

Lt. Col. Burnell: (Suggests getting vocational and ESMDT together to thrash out the problem.)

Mr. Norton: Well, that is the only suggestion I have, that we do not risk the opportunity of losing the fine facilities of ESMDT.

Dean Potter: (Thinks that is an internal problem.)

Dean Hammond: One thing that will cause trouble is the difference in the rate of pay for instructors.

Lt. Col. Burnell: But considering the fine cooperation, I think it can be worked out.

MR. GEORGE G. THOM
DIRECTOR OF TRAINING
THE SUN SHIPBUILDING AND DRY DOCK COMPANY

(Not edited by Mr. Thom)

I would like to reinforce the comment that Mr. Norton has made. We have trained around 1800 men. There will undoubtedly be a continuation program. However, as Mr. Norton mentioned, there are thousands of these men who will have to read blueprints on their jobs - some high school, and some even below that. We feel that with the ESMDT setup there is a real possibility of making use of these highly trained instructors who do the

Mr. Thom: (continued)
engineering design work in the company. Of course, the follow-up work probably could be adequately done by vocational.

Dean Potter: As I understand it then, so far as the Sun Shipbuilding Company is concerned, apparently the saturation point has been reached. (Asked Mr. Pew if that applies to the whole industry or just to his company.)

Mr. Pew: I don't know.

MR. A. M. RUPKE
MANAGER OF TRAINING
BETHLEHEM STEEL COMPANY

To begin, I would like to say that in those cases where we have had occasion to take advantage of ESMDT courses, cooperation from local representatives has been fine.

I will cover the points contained in a memorandum I have. Should there be any questions I will be glad to try to answer them.

(1. Question: Experiences of your company with ESMDT program and your suggestions for its improvement.)

Answer: As you may realize, our business, with exceptions affecting relatively small numbers of employees, in its technical forces requires a general technical background rather than a narrowly specialized one. For example, a relatively small number of our people are engaged in drafting work.

Because of this situation, we have not felt the need generally for such training as is afforded by the ESMDT. The program has been entered into wherever needed.

Also, there have been and are operating certain similar programs which have been entered into intensively for a number of years. Notable has been our experience in the Pennsylvania State College extension programs.

Results experienced with ESMDT have been mixed. In some cases excellent results are reported. In others, poor results are reported.

Generally, more favorable results are reported in those cases where present employees pursue courses in the work in which they are engaged. This experience includes programs in which our people had an opportunity to assist in laying out the courses and have taken part in the instruction. This has been called here today "Supplemental Training."

Unfavorable results are reported in cases where courses were pursued previous to employment in our organization. This has been called here today "Pre-employment Training." In such cases, the most frequent criticism was that courses were not practically applicable to our own problems. In some of our plants work is not mass production, but rather, a "jobbing" operation. This was due to a number of causes, particularly

Mr. Rupke: (continued)
that the courses were designed for another type of industry; the training had not contained some of the basic foundations necessary for certain types of work; and, most important, the individual usually lacked a broad enough foundation -- knowledge was too narrow to cover related topics. Not strictly a fault in training, but evident in many cases was the impression of individuals that they were full-fledged engineers.

(2. Question: Anticipated needs of your company during the fiscal year 1942-43 for engineers, chemists, physicists, and production supervisors.)

Answer: Accurate figures are not possible. Demands of the armed forces cannot, of course, be foretold. The following are estimates:

> So far as Reserve Officers are concerned, all those we expect to have go have gone, and now we have less than eighty Reserve Officers.

a. Engineers: Each year the company employs through a training course, known as the Loop Course, a number of college graduates of that particular year. It is estimated that, normally, five other such graduates enter our employ directly into a unit or activity. An estimate of those desired would be:

	Training Course	Others	Total
Mechanical Engineers	50	100	150
Administrative or Industrial Engineers	5	20	25
Metallurgical Engineers	25	50	75
Chemical Engineers	10	20	30
Electrical Engineers	10	20	30
Naval Architecture and Marine Engineers	10	30	40
Civil Engineers	10	20	30
Mining Engineers	10	15	25
Miscellaneous Engineers	20	25	45
Totals	150	300	450

The 150 figure is a "rock-bottom" one.

Dean Potter: Does that apply to the whole Bethlehem Steel Company?

Mr. Rupke: Yes. Normally, we would have around 100 in our training course.

Dean Potter: What about next year?

Mr. Rupke: I would hesitate to say about that.

I would like to say here that the availability of college graduate engineers is also of great concern to us. We do not need them in as large numbers as General Electric. Our figure is about two-thirds as large as theirs.

Mr. Rupke: (continued)

However, the numbers we need are vitally needed. The necessary broad engineering training for our work cannot be replaced by the training of individuals in a limited specialty.

b.	Chemists:	25
c.	Physicists:	2

d. As to production supervisors, I hesitate to estimate. Heretofore, programs we have been asked to carry out have been doubled and trebled before the first proposal could be started. Our forces have grown since 1938 from 84,000 to a present over 225,000. The following may be only a wild guess:

Production Supervisors: 2,000 (To be supplied through upgrading.)

(3. Question: Policies of your company with respect to requesting deferment of employees of draft age.)

Answer: Our policy is to ask deferment in those cases where the employee is defined as an "essential man" under the Selective Service Act regulations, excepting in those cases where, on the basis of these regulations, such as, dependency, we believe that deferment will be granted for other reasons.

(4. Question: Policies of your company with respect to employment of women in scientific, technical and managerial positions.)

Answer: Due to the nature of iron and steel production and shipbuilding, we do not have as broad an experience as some others might have.

However, in those cases where women are employed, such as, tin-plate inspection, supervision is by women.

MR. A. E. MARSHALL
PRESIDENT
RUMFORD CHEMICAL COMPANY

(Not edited by Mr. Marshall)

Of course, my company has not had as much experience with ESMDT as some of the companies of the other speakers. And it so happens that ESMDT work has not fitted in with the kind of work we carry on at Rumford. There is nothing in the way of ESMDT training available to us there. In the chemical industry we have a need of technically trained men who have had at least 4 years of college work, and in the case of chemical engineers and physicists, preferably 5 or 6 years. Rumford Chemical Company is really a small industry employing a few over 400 people. We have 18 people in the plant that come under the classification of chemical engineers. It has been estimated that you'd need one technically trained man for every $20,000.00 worth of work you turned out. The statement seems to have been made generally that we have sufficient number of chemical engineers and

Mr. Marshall: (continued)
perhaps even physicists. Going back to these plants, you would need at Rumford an addition of 6 to 18 merely to take care of additional War Work. I am very much disturbed personally with the possibility that the same sort of thing may happen in this War that happened in War No. 1, both here and in England. We will register the 18- and 19-year-old boys. The 18-year-old boy is a boy who this year entered college with the vague idea that he was going to be some sort of an engineer, and yet unless something can be done to pick out the talent you have, unless ways and means can be devised, etc., I don't see where we're going to be in 1945. We have been told that the synthetic rubber program when complete will involve 2,000,000 tons of rubber. That is a greater quantity than all of the synthetics being produced in this country now. I am somewhat disturbed from the chemical end about carrying that sort of thing through.

The attitude of the draft boards throughout the country varies. At Rumford, we are in the unfortunate situation of having a draft board that believes that anyone with a high school education can do any sort of chemical work and any man who is physically fit should go into the armed forces. We have to go through all sorts of things to get deferment for our essential men. Four months ago we invited the draft board to our plant and showed them through the plant and explained to them all the different kinds of scales, etc. We've had no trouble since. We request deferment only in the case of men we could not replace. If we had anyone else we could put on his job, we would not ask for his deferment.

(Mentions that they had had experience with ESMDT since he thought of it, in that 7 of their employees had gone down to Brooklyn to take an ESMDT course.)

One thing I am interested in particularly is, have you any idea how many people are going through pre-employment classes that will be picked up by the draft?

Mr. Reid: We have had the experience that we can save anyone who is vital to us. Our understanding from Washington is that we should do that and we have had fine cooperation from the local draft boards. We have done the same sort of thing you mentioned, Mr. Marshall.

Mr. Marshall: In respect to employment of women, we are like all other chemical concerns in endeavoring to bring women into test laboratories to handle that side of the work.

MR. W. A. HUGHES
ASSISTANT VICE PRESIDENT
AMERICAN TELEPHONE & TELEGRAPH COMPANY

Our experience in the telephone industry is somewhat different. About four-fifths of our business is tied up in telephone operation and very properly those departments are curtailed. Western Electric has expanded. Mr. Bridgman will present a statement for our company.

MR. D. B. BRIDGMAN
AMERICAN TELEPHONE & TELEGRAPH COMPANY

This statement covers the suggested topics not only for the American Telephone and Telegraph Company and its associated operating telephone companies, but for the Western Electric Company, the Bell System's manufacturing and supply organization, and the Bell Telephone Laboratories.

Experience with ESMDT **Program**

It is rather natural **that the experience** of the Bell System Companies with the ESMDT program should have been limited, since very properly that program has been designed primarily to assist in the solution of manufacturing problems in the war production industries. In general, it has always been our opinion that the System itself should provide training in direct applications of fundamental technical knowledge to telephone work, and on the whole it has been in a position to carry through that principle in this emergency period.

There have been, however, two specific instances of company participation in that program. In the most notable, Case School of Applied Science and the University of Akron have worked with the Bell organizations in their vicinity in the development of courses in communication attended by about 300 System employees on their own initiative. In the other, the telephone company selected four men for a course in Job Analysis and Salary Determination given by the University of Southern California. In addition, four or five of the operating telephone companies have reported that a limited number of their employees were taking ESMDT courses, principally in radio communication. The Bell Telephone Laboratories have employed a number of draftsmen who have completed the refresher course in that field and 30 or 40 of its employees have taken one of the ultrahigh-frequency courses given in the New York metropolitan area. Several hundred employees of the Western Electric Company's Kearny Plant have taken various ESMDT courses at Newark College of Engineering and the University of Newark, and a number of its engineering employees at the Hawthorne Plant have taken such courses at the Illinois Institute of Technology.

The communications courses at Case and the University of Akron were given by telephone men and a number of other System employees have given radio courses at various institutions. A telephone man is in administrative charge of the course in Industrial Management for Foremen at Illinois Institute of Technology and five other telephone employees have acted as instructors in that course.

These contacts with the program, however, have not been sufficiently extensive to provide any suitable basis for valid suggestions concerning it. The men selected for the job analysis course at the University of Southern California have given distinctly favorable reports with regard to it, and those who have taken the communications courses at Case and the University of Akron have gained a better understanding of some phases of their work, particularly where difficulties in the use of alternating currents are encountered. The radio courses have proved of some value to the companies, but their value to individuals expecting to enter the Army or the Navy has seemed even greater. Apparently the ultrahigh-frequency courses which have used several men as lecturers have proved somewhat less satisfactory than those conducted by a single competent instructor.

Mr. Bridgman: (continued

Needs for Engineers, Chemists, Physicists, etc.

In the fiscal year 1942-43 under war conditions, the imperative needs of the System for men with training in engineering and the physical sciences may be estimated as about 250, although a larger number could be used to great advantage if they should be available. Although under normal conditions more than half of the men of such training required would enter the operating telephone companies, the very large majority of the men needed this year would go into the Bell Telephone Laboratories and Western Electric Company, whose activities are now primarily devoted to development work and production for the armed forces and which must be able to cope with rapidly changing demands. For the coming year, it should be possible for the operating companies to carry on their essential technical work almost entirely with their present engineering forces. In fact, a number of transfers of engineers from those companies to the Laboratories and the Western Electric Company have been and are being made.

Deferment Policy

The policy of the Bell System has been to request draft deferments only in cases where the special character of an individual's work and ability, or unusual difficulty in securing and training replacements for men in a skilled occupation make it certain that their removal would cause a serious loss of effectiveness in the Company's essential activities. The application of this policy, however, naturally produces widely varying results under different conditions. In fact, about one-half of the operating telephone companies have requested no deferments or a negligible number, and 90% of the limited number requested by the operating companies have occurred in the five organizations in whose territories there has been unusually large military or industrial activity, and in the Long Lines Department of the American Company, for whose service there has been a greatly increased demand. Because of their work for the armed services and the great pressure under which it has been performed, the Bell Laboratories and Western Electric Company rather generally have requested deferments for skilled craftsmen and technically trained men, including those who have just entered these companies from the colleges. The great majority of the operating companies have confined their deferment requests to men of substantial service in the business and none has made requests for newly employed college men. This year, those companies have employed a very limited number of such men, principally men not subject to early military duty. Very few men with technical training, however, have been drafted from their ranks since most of those going into the armed services have secured commissions as members of the Officers Reserve Corps, the Naval Reserve, or through the Affiliated Plan of cooperation between the Bell System and the Signal Corps, through which the System will have furnished to the Signal Corps some 2500 volunteers as telephone specialists, including 750 commissioned officers during 1942.

Employment of Women in Technical Positions

For many years the Bell System has employed women in supervisory and staff positions, including some of a technical nature, and their use in such positions has tended to increase gradually. In the operating telephone companies this trend has not been markedly affected in the past year or two, largely because their additional needs for technically trained personnel have been relatively small. In the Bell Telephone Laboratories and Western Electric Company, however, there has been a definite attempt to

Mr. Bridgman: (continued)
use more women in technical and scientific work. This has involved in a few instances the employment of women for strictly engineering or scientific positions, but in more cases, principally because of the somewhat restricted training of the women available, they have been utilized as engineering assistants in somewhat specialized activities. Even for work of this character, the number of qualified women who can be secured is less than the number of positions open to them.

Dean Potter: Then, apparently, in the case of the telephone industry, you can expect a decrease in demand, and the demand from Western Electric may increase some but not very much.

MR. ALBERT SOBEY
DIRECTOR, GENERAL MOTORS INSTITUTE
GENERAL MOTORS CORPORATION

What I have to say is very largely in confirmation of points that have already been made and can be covered rather briefly.

The experience of the Divisions of the General Motors Corporation with the E.S.M.D.T. Program has been somewhat more limited than might normally be expected, in view of the magnitude of its operations for the war effort, for two reasons:

First - At the beginning of the war emergency the Corporation was quite well prepared with trained men as a result of extensive training programs developed and conducted over the years.

Second - With an experienced organization thus available, the existing training programs were quickly adapted and expanded and new programs organized as needed to meet the requirements of the Corporation for trained men for the war effort as they developed.

However, when I received this assignment, I was pleased to find that various Divisions of the Corporation have been participating in the program and that Corporation engineers have been assisting by teaching courses in their fields. The reports, with some exceptions, were very favorable, referring to courses well organized and well conducted. In confirmation of the reports of other members of the Conference, there was invariably a favorable reaction to those courses organized to meet specific needs of the plant and where the men in training were well selected, with the proper relationship to the job objective of the program. The unfavorable reports referred to certain of the pre-employment courses open generally to the public.

Out of this experience there are three suggestions which might be helpful to this body in planning for the period ahead, and in this I am acting as a reporter of reflections that have come to me from the field.

First - Careful selection or classification of students in terms of qualifications for or relationship to the job objectives of the training offered.

Mr. Sobey: (continued)

In this my attention was called to the fact that misfits might include men of some training and experience in engineering during years past who wish to "brush up and cash in on the emergency," as well as those with no previous engineering experience who lack the background to qualify in the relatively short time available for war work in the field for which the training is designed.

Where conditions permit, all factors influencing the results obtained from courses of this general nature can be strengthened by organizing classes of students with as nearly uniform job objectives and relationships as possible and directing the training to meet these specific job objectives.

Second - Careful attention to the point of view presented to the students on entering the program.

A number of cases where reported of wrong attitudes on the part of students. This problem, of course, is familiar to anyone who has had experience in training of this general character, but since it is accentuated by the war situation, it needs more careful handling than would normally be necessary.

Third - For the year ahead, even greater emphasis needs to be placed upon the needs for trained men in the industries of the area served, as the basis of the courses organized and presented.

This applies to all training for the war effort. "Streamlined courses of training" which the present emergency requires should be carefully designed to meet specific objectives, and the objectives clearly recognized as preparation of men as nearly as may be to meet the requirements of their own job situations and/or the specific needs of the industries served.

Hence, the specific requirements of the industries and/or their employees determine the training needs in a given area, while the nature and extent of the instruction of a given class will, of course, depend upon the background and the job objectives and relationships of its students.

As to needs for next year, it is difficult to obtain definite figures. Possibly the most helpful way to put it is to say that the needs of the Corporation for trained men during the year ahead will probably correspond in volume to those of the past year, but the type of men will vary as the war progresses.

A year ago the requests for college engineering graduates broke down roughly as follows:

Design--engineering development & testing	40%
Production--including methods, processing, tool engineering & for training for supervision	40%
Metallurgical--including chemistry and physical testing	20%

Mr. Sobey: (continued)

In the transfer of employees affected by the lay-off during the winter months, the demands ran about as follows:

Production--including processing, methods expediting, purchasing, material follow-up training for supervision	70%
Product Engineering--including design, development and product testing	5%
Accounting and related work	25%

The two sets of figures, of course, do not refer to parallel situations. The first represents the annual requests for college graduates while the second was, undoubtedly, greatly influenced by the type of men available for transfer. Nevertheless, there is indicated the effect of the progress of the cycle from engineering design to production. The growing need for men for servicing the war products is another indication of this trend.

Requests coming to us now indicate the following as the fields of greatest need for men of technical training:

- Supervisors--developers of men
- Process Engineers
- Layout Men
- Standards & Methods Engineers
- Tool Engineers
- Welding Engineers
- Hydraulic Engineers
- Product Testers
- Key Service (War Products) Engineers
- Metallurgists-Chemists-Physicists

In respect to Selective Service - the policy corresponds to that indicated by other companies, namely, to request deferment only in the cases of those in essential key jobs--skilled, technical, and supervisory--who have qualified for their present responsibilities through relatively long periods of training and who cannot be replaced except by men who have had or can be given a correspondingly extensive training.

With reference to the employment of women in technical fields, apparently we are not as far along as some of the other industries have indicated. Throughout the Corporation there are numbers of departments of women employees that are headed by women supervisors, and there is a growing trend in the direction of training and utilizing women in technical fields, particularly drafting, precision measurements, and routine testing. However, the present policy is to fill the normal type of positions along scientific, technical, and managerial lines with men, while men are available.

Dean Van Leer: (Refers to the training work that is being done by General Motors in preparing men for the armed forces in the proper use and maintenance of General-Motors-produced war products, and to the contract negotiated between the Government and G. M. covering this service.) Will this training service of the Corporation tend to deplete college staffs of capable men available for ESMDT Programs in this field? Qualified instructors are relatively scarce.

Mr. Sobey: No, I do not think so. The particular service you refer to is a Corporation Program and would be supplementary to any ESMDT Programs in this field, such as the Diesel Training to which Dean Potter referred. The Corporation is building and training its own instruction staff, largely recruited from its service departments. If we can be helpful to the ESMDT we shall be glad to do so.

President Doherty: How does the need for full-fledged engineers for this year compare with the need for a normal year?

Mr. Sobey: I believe the situation is well expressed in the statement made by a previous speaker, "We will take as many as we can get." I understand that the number last year was some 200 to 250, and indications for next year are that we will try to get that many.

MR. C. W. COLE
ENGINEERING PERSONNEL SUPERVISOR
THE CURTIS WRIGHT CORPORATION

(Not edited by Mr. Cole)

The Curtis Wright picture has been somewhat answered by Mr. Reid and Mr. Irwin. The airplane situation is somewhat the same all the way through. Two thousand of our men have taken your ESMDT courses - some pre-employment, some in-service, and both have been very successful all the way through. The in-service has been more successful. There has been some trouble with pre-employment. We have tried to notify the immediate superiors of employees taking these pre-employment courses, etc. The only suggestion I would have for improvement would be the one that Mr. Boring brought out, that is, solicitations from courses all over the country suggesting that our companies use their graduates, etc. One of the most interesting things under ESMDT, and one of the most helpful, has been the training of our guards in the course called "Plant Protection." With all due credit to other courses, that particular one helped us at the moment when we needed help more than anything.

In respect to needs of our company next year and for the future, our most pressing problem is trying to find where we are going to get graduate engineers. Our needs are about 600. Last year we estimated our needs at 800 and got 600. Our need for next year is slightly lower than last year. We may relieve the situation some by breaking down our actual jobs in the Engineering Department and using other types of trained people, and through the use of women. Our figures are about the same as Mr. Boring mentioned. In respect to women, we have taken them into testing courses, giving them the same full comprehensive training we have given our graduate engineers. We have hoped that we can take this group of girls who have had science majors and use them to advantage. Speaking of women in managerial positions, we have had to use them and are doing it more and more. The 600 engineers we have estimated for the coming year may be divided as follows: 60% mechanical, 15% aeronautical, 15% civil, and 10% miscellaneous. The ESMDT work has been very helpful in specializing the training we have done.

In respect to deferment, our policy is about the same as has been expressed by other speakers. Our success today has been extremely good

Mr. Cole: (continued)
even on the graduate engineers that we have taken in this year. Of course, we will continue to ask deferment for these men as they must fill gaps and vacancies.

MR. R. G. ANDREWS
DIRECTOR OF ENGINEERING PERSONNEL
THE GLENN L. MARTIN COMPANY

Our experience at The Glenn L. Martin Company has been very similar to that described by the representatives of the Douglas, Lockheed and Curtis Companies in that we are very well satisfied with the results of your training program. According to present indications, we estimate that we will need for the coming year, five hundred Engineers, which may be divided into two groups, two hundred college graduates and three hundred sub-professional Engineers, the latter coming from the ranks of those trained by your courses. This figure is based upon our ability to absorb ten per week in our Training School, which has been designed to equip these men to enter our Engineering Department.

With regard to our total need for the future:

Several years ago we thought that our Engineering Department would stabilize at the one thousand point but later demands raised it to fifteen hundred, and then, when we finally sailed past the two thousand mark, we gave up trying to predict what our ultimate limit would be. However, as we can absorb five hundred people during a year, we believe that this figure represents a reliable estimate of our requirements.

We have also used ESMDT trainees in the Inspection Department and as Dean Steinberg, of the University of Maryland, will tell you, at one time the training courses under his direction as well as those given by Johns Hopkins University enabled us to avert a very critical personnel condition in that department.

In regard to Selective Service deferments, we have applied for deferments for all of our people doing technical work. These have been granted in every case with the exception of one and, in that case, it was mutually agreed that that particular party could not qualify as Engineering material.

We are using women in our Engineering Department and, at the present time, thirty have completed our training course and are doing productive work and thirty more are now being trained. They are eligible for all types of positions in the Engineering Departments. They receive the same salary and hold the same positions that men with equivalent training and experience hold.

Our Company would be seriously opposed to any slackening off in the pre-employment training which your committee sponsors and, if for any reason that step is taken, we would like to see that same effort diverted to the training of people now employed. Due to the type of personnel which we have been able to obtain, this training during employment has become a major problem and follows as a logical secondary step to the pre-employment program. To indicate the interest in this type of training, I would like to call your attention to the fact that there are

Mr. Andrews: (continued)
over two thousand of our present employees now enrolled in ESMDT courses all receiving valuable help toward their upgrading.

I believe that the foregoing remarks have covered the questions in which you are most interested and I would be very glad to give any additional information which is required.

Dean Potter: Now that gives us a fairly good picture of the problems before the airplane and shipbuilding industries. We are fortunate in having with us today a man who has been very helpful to us in the past. (Introduced Dr. Donald H. Davenport and asked him for his views.)

DR. DONALD H. DAVENPORT
BRANCH CHIEF, BUREAU OF LABOR STATISTICS
U. S. DEPARTMENT OF LABOR

For two years the Bureau of Labor Statistics has had the responsibility of piecing together the overall picture of labor requirements arising out of the defense and war production programs. I recall two years ago the first defense appropriation that we worked on was four and a half billion dollars! Today the cumulative total appropriated for war production is in excess of two hundred billion dollars! It has been our job to translate those increased appropriations of billions of dollars into terms of manpower requirements. It is our considered judgment that within the next eighteen months we will have to put twice as many men into war production as we have in war production today. December 1943 will see approximately twenty million workers engaged in war production in the United States. Today that figure is only eleven million.

For example, in the shipyards, it is estimated that at the peak of operations we will need 146 per cent more workers than we had in January 1942. That peak presumably will not be reached before the end of 1943. The aircraft industry is expected to reach almost a million men this year and to expand greatly next year. I do not believe that we are very close to any "tapering off" point.

It was my privilege recently to listen to Dr. Glenn McLaughlin of the National Resources Planning Board describe the new war production plants that have been built and which are still being built. The program of expanded plant facilities amounts to over fifteen billion dollars and may total twenty billion dollars before it is finished. Military strategy has played an important part in the selection of the location for these plants. As a result, the pattern of job requirements doesn't fit into the old pattern of labor reserves at all. Many jobs will be in new areas where labor must be trained before it can be effective. While there no doubt exist situations where existing plants are operating at capacity and are approaching the point where they will need few more workers, I venture to say that such areas are not typical. Our studies indicate clearly that there will be many new workers who will require the type of training given by the ESMDT.

There has been some comment of the way in which the local draft boards have been educated to appreciate our war production manpower problems. I can't say that we in the Bureau of Labor Statistics have been as successful as some of your industrialists in getting deferment.

Dr. Davenport: (continued)

If we build an army of ten million men, where will they come from? These men will have to come from wherever they may be - they are not to be found in the ranks of the unemployed. Some airplane plants have reported that the average age of their workers is only twenty-two and a half years. It is likely they will lose heavily. The number of men required by Selective Service will keep increasing. They are coming out of the jobs they now hold in spite of the fact that they may have dependents. Their places will be taken by women. We anticipate that approximately five million women, not normally in the labor force will be employed by the end of 1943. I believe all of them will need some sort of training. Our studies point to the necessity of continued efforts on the part of ESMDT. Of course you must improve, you must take account of the suggestions made here this afternoon. There is every reason why ESMDT must carry on.

LT. COL. C. R. DICKINSON
LIAISON OFFICER
U. S. SELECTIVE SERVICE COMMISSION

I have listened to the reports of the various industrialists here on how some of them have "softened up" some of our local boards according to their own statements. A certain amount of close cooperation is essential, of course, but I have gotten the impression here that people on the West Coast are rather stars at the whole problem of selling their point of view to some of these local boards they have mentioned. One thing I would like to point out is that the whole matter of occupational bulletins and people who are considered for deferment should be handled in a very flexible way. We need tremendous flexibility, both as to time and place, because the product which is of crucial importance one week may be superseded two weeks later by a totally different raw material or process. (He then told something of the background of the Selective Service System, the fact that it worked on a democratic basis, that if mistakes were made, the board members had to live with those mistakes 365 days out of the year.)

Dean Potter: The reports from industry are that the demand for well-trained engineers have become more and more acute. If the war were to be a short one, I wouldn't raise this question. Now, that directive that was presented, as I understand it, was intended for pre-medical students, and I have been wondering whether Selective Service and the Manpower Board have had a chance to review this matter in respect to engineering and technical students.

Lt. Col. Dickinson: In reply to your question, I just wonder whether you have seen Bulletin No. 10, which was released on June 18. I know that Dr. Carmichael and his group worked for several days with men in our office and we secured the benefit of their advice in this preparation.

Dean Potter: It happens that 40% of our freshmen and sophomores are about twenty, and if those people were inducted at this time, industry will wake up two years from now and won't be able to find anything like the number of graduate engineers they now anticipate.

Lt. Col. Dickinson: That matter is being very seriously considered now and every effort is being made to cover the situation.

Dean Potter: A case has come to my attention of qualified engineers in Class 1A who, for physical reasons, are not eligible for commissions, but are eligible for the draft.

Lt. Col. Dickinson: No. A particular directive has been sent out on that, and if there are specific cases of that kind we want to know about them.

Dean Dodge: (Brings up problem of dearth of physicists.) Estimates show that on January 31, 1943, we are going to need 10,000 physicists with at least one year of graduate grade training, and on January 1, 1944, we will need 12,000. The normal number of physicists is 7,000 and we are going to have to give some sort of training to 200,000. We are going to need about 5,000 teachers and the normal number is about 200. We are concerned because our instructors may be called by the draft boards. (He fears that local draft boards are not acquainted with the need.) How are they going to learn that the greatest need is for physicists and the next greatest need for engineers and chemists in war work?

Lt. Col. Dickinson: As you know, under the Selective Training and Service Law there is a direct prohibition of securing group deferments for any particular class of workers or professional men. Our method of handling physicists and others as you will note by the occupational bulletin, a part of which I have read to you, is to mention them as a group deserving of careful consideration because there is a scarcity of such men. You ask how we are going to impress the local boards that there are more physicists than there are geophysicists and several other technical questions. You say to me "How is the Board going to know about them?". The tremendous needs which you point out should be brought home by people like yourselves who are in possession of all these technical facts. A Form No. 42A can be filed in the case of any man working for you whom you consider essential for the war effort.

E2-303-W34

Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

ENGINEERING, SCIENCE, AND MANAGEMENT DEFENSE TRAINING

Summary of Status of Program
(Cumulative from July 1, 1941)

Item	August 29, 1942	August 22, 1942
Number of institutions with approved proposals for courses	196	196
Number of approved proposals for courses (Less cancellations)	7,949	7,949
ALLOTMENT OF FUNDS:		
Disbursements	$ 16,789,016	$ 16,740,446
Less: Refunds	411	332
Net disbursements	$ 16,788,605	$ 16,740,114
Add: Unliquidated encumbrances	2,105,679	2,171,214
Net total allotment	$ 18,894,284	$ 18,911,328
Net total allotment by courses for:		
Engineers	$ 16,196,177	$ 16,210,195
Chemists	433,074	435,790
Physicists	307,534	307,491
Production supervisors	1,957,499	1,957,852
	$ 18,894,284	$ 18,911,328
ENROLLMENT		
Reported (end 1 week of instruction)	368,198	367,222
Additional enrollment authorized *	40,564	42,209
Net total authorization	408,762	409,431
Net total authorization by courses for:		
Engineers	324,877	325,411
Chemists	7,465	7,570
Physicists	5,530	5,533
Production supervisors	70,890	70,917
	408,762	409,431

* Less cancellations

NATIONAL INSTITUTE ON EDUCATION AND THE WAR
American University
Washington, D. C.

SYMPOSIUM: Friday, August 28, 1942, 2:00 p.m.

SUBJECT: IN WHAT DIRECTIONS SHALL PREEMPLOYMENT AND INSERVICE TRAINING OF TECHNICIANS BE FURTHER EXTENDED?

SPEAKERS:

Dr. A. A. Potter, Chairman, National Advisory Committee, Engineering, Science, and Management War Training Program (Purdue University, Lafayette, Ind.)

1. Early in 1940 it became apparent that our National Defense effort would require for its effectiveness not only millions of skilled workers, but also large numbers of engineers who were competent in a wide variety of technical services.

2. In recognition of this need, Congress appropriated $9,000,000 for the program known as Engineering Defense Training. In this program 107,830 persons were trained for engineering work.

3. For the next fiscal year, this program was enlarged to include chemistry, physics, and production supervision and $17,500,000 was appropriated. Later a supplementary appropriation for $3,000,000 was made. The name of the program was Engineering, Science, and Management Defense Training. The number of persons trained was 456,439.

4. For the present fiscal year, $30,000,000 has been appropriated, to train an estimated number of 500,000 in the Engineering, Science, and Management War Training program. It is anticipated that enrollments will exceed this figure and the number of women trained will be appreciably larger than the 37,000 trained last year.

5. The war training programs on the college level have brought about a new cooperative relationship between the U. S. Office of Education, other agencies of the Federal Government (including the armed forces), and the colleges and universities.

Colonel G. L. Davasher, Liaison Officer, Technical Training Command, Army Air Force, War Department

1. General introductory remarks

2. Brief outline of training given by Technical Training Command of the Army Air Forces, by subjects, and time allotted to each.

3. Subjects which should be taught by colleges, high schools, etc., which would be of value to an individual entering the Army Air Forces.

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B-4

Mr. George H. Hieronymus, In Charge Inservice Training Section, Civilian Training Branch, Signal Corps, War Department

1. The fate of the Army depends upon the ability of the Signal Corps to get the message through.

2. The Signal Corps must develop, purchase, install, maintain, and supervise the operation of hundreds of thousands of units of communication equipment.

3. Many thousands of skilled civilian technicians must be trained to carry on this work.

4. The Civilian Training Branch of the Signal Corps administers the preservice and inservice training of these technicians and of all other civilian personnel.

5. Preservice training courses are conducted in vocational schools and colleges throughout the country, under the war training programs of the U. S. Office of Education.

6. Inservice training is conducted for all civilians throughout the Signal Corps by regular administrative and supervisory personnel who have been or are being trained in the techniques of inservice training.

7. Signal Corps plans for the future are to employ and train, for specific duties and in the shortest possible time, the number of civilians necessary to "keep 'em flying and rolling."

Major Blake R. Van Leer, Training Division, Services of Supply, War Department

1. The training in the S.O.S. is divided into two major sub-divisions, that for military personnel and that for pre-induction and civilian training.

2. The Training Division of the S.O.S. has contact with civilian educational institutions in three ways: (a) Through the R.O.T.C., (b) When the S.O.S. contracts for the training of some of its specialists and (c) When the S.O.S. leases the training facilities of some of the educational institutions.

3. Most educators are familiar with the R.O.T.C. and although the new recruiting program is of interest to this body that is not the subject of this conference and since there are no plans for expanding the R.O.T.C. at this time, no further discussion of this subject will be included.

4. The Army is likely to make more and more use of the training facilities of the institutions of higher learning. This will be on a lease basis and will seldom involve instruction, but will include dormitories, mess hall, classrooms, offices, etc.

5. The Army needs men trained and skilled in over 400 different occupations. We do not receive a sufficient number of some of these specialists through the Selective Service and we are now engaged in training in civilian schools such specialists as: Outboard Motor Mechanics, Surgeons, Anesthesists, Sanitary Engineers, Industrial Hygienists, Dental Equipment Technicians, Diesel Engine Mechanics, Welders, Electricians, several varieties of Machinists, Auto Mechanics, Motorcycle Mechanics, Tire Repairers, Radio Operators, Radio Mechanics, High Speed Operators, Radio Mechanics, Repeatermen, Teletype Maintenance Men, Cable Operators, Cable Technicians, etc.

Commander William J. Lee, USNR, Officer in Charge Communications Training, Training Division, Bureau of Naval Personnel, Navy Department

1. Definition of "preemployment" and "inservice" training.
2. Military and naval establishments must supplement college grade instruction in confidential specialties.
3. There are several types of Navy service schools.
4. College-grade instruction in Ultra-high Frequency Techniques is helpful to the Navy's ultra-high frequency technique training program.

Mr. Philip S. Van Wyck, Acting Director, War Production Training, War Manpower Commission

1. Out-plant training programs:
    a. Vocational Training for War Production Workers
    b. National Youth Administration
2. In-plant training programs:
    a. Training Within Industry
    b. Apprenticeship
3. Close liaison cooperation between all programs under the War Manpower Commission.
4. Approximate cumulative and going enrollment figures on each program.
5. Training trends:
    a. Production in training
    b. Payment of trainees--preselection
    c. Training of women and minority groups
    d. Specific courses for specific plants
    e. Fields in which demands are continuous or increasing, such as: machine shop, ship, aircraft and ordnance production, and aircraft maintenance.
    f. New Fields: transportation, mining industries, agriculture
    g. Program difficulties due to priorities: welding and radio
    h. Betterment of existing programs.

Mr. E. J. Stocking, Assistant Chief, Examining Division, Physical Science and Clerical Placement Section, U. S. Civil Service Commission

1. Recruiting for war service positions.

2. Shortage of qualified applicants.

3. Measures adopted to stimulate applications:

    a. Large-scale announcement of examinations
    b. Intensive publicity
    c. Continuing examinations until further notice
    d. Utilization of applicants
    e. Transfer of employees for war work to agencies of higher priority
    f. Direct recruiting among colleges and institutions
    g. Training programs as sources of recruitment

Mr. William K. Bassett, Acting Chief, Recruitment and Placement Section Division of Personnel, U. S. Maritime Commission

1. The Maritime Commission--its history and activities, prewar and war.

2. Technical personnel difficulties in recruitment, and present needs.

3. Training--a partial solution to technical personnel shortage.

4. Men to man the ships--program of Division of Training to develop Merchant Marine officers.

Dr. John R. Heller, Past Assistant Surgeon, Medical Section, State Relations Division, U. S. Public Health Service

1. Wartime activities of the U. S. Public Health Service which demand additional trained technicians.

2. Recruitment practices in the various professional categories.

3. Inservice training of U. S. Public Health Service personnel.

4. Survey of hospital and health departments--need for additional professional personnel.

5. Nursing education project as operated by U. S. Public Health Service.

6. Utilization of untrained personnel in programs of the U. S. Public Health Service.

7. Training needs.

Miss Edith H. Smith, Assistant Executive Secretary, Subcommittee on Nursing of the Health and Medical Committee, Office of Defense Health and Welfare Services, Federal Security Agency.

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FEDERAL SECURITY AGENCY
U. S. OFFICE OF EDUCATION
WASHINGTON

ENGINEERING, SCIENCE, AND
MANAGEMENT DEFENSE
TRAINING

August 21, 1942

INSTITUTIONAL REPRESENTATIVES, ESMWT PROGRAM

SUBJECT: REQUEST OF BUREAU OF BUDGET

Gentlemen:

We have been called upon by the Bureau of the Budget to present on Thursday morning, August 31, estimates of various phases of the ESMWT Program for the years 1942-43 and 1943-44. In order to comply with this request, we will greatly appreciate estimates of your institutional program under the following headings:

1. An analysis of estimated needs for training in the fields of Engineering, Physics, Chemistry and Management as they are related to the war industries and agencies for the balance of the current fiscal year and the fiscal year 1943-44. Compare with ESMDT Program.

2. Specific quantitative data on the capacity of your institution to offer types of training in which there may be a call. Where institutions are using or propose to use facilities other than their own for off-campus courses, please indicate the extent of such facilities, both in teacher personnel and physical plant.

3. Give particular data on types of persons taking courses, with estimates of enrollments and types of courses to be proposed in the future. Indicate division of classification for pre-employment training, inservice training of war workers, inservice training of non-war workers and the percentage of trainees who will enter war work upon completion of the courses.

4. Please indicate in detail, the services rendered for specific war industries by ESMDT and ESMWT courses. (Data of the number of men who were trained and employed for specific jobs will be extremely helpful).

Very sincerely yours,

Geo W. Case

George W. Case,
Director

FOR DEFENSE
BUY
UNITED
STATES
SAVINGS
BONDS
AND STAMPS

E3-303-W34

Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

ENGINEERING, SCIENCE, AND MANAGEMENT WAR TRAINING

Summary of Status of Program
(Cumulative from July 1, 1942)

Item	August 29, 1942	August 22, 1942
Number of institutions with approved proposals for courses	157	156
Number of approved proposals for courses (Less cancellations)	1,849	1,686
ALLOTMENT OF FUNDS:		
Net disbursements	$ 882,824	$ 610,111
Unliquidated encumbrances	5,330,310	4,629,587
Net total allotment	$ 6,213,134	$ 5,239,698
Net total allotment by courses for:		
Engineers	$ 5,212,932	$ 4,378,288
Chemists	118,697	107,968
Physicists	147,403	138,960
Production supervisors	734,102	614,482
	$ 6,213,134	$ 5,239,698
ENROLLMENT:		
Reported (end 1 week of instruction)	10,879	5,601
Additional enrollment authorized	149,719	127,586
Net total authorization	160,598	133,187
Net total authorization by courses for:		
Engineers	122,394	100,453
Chemists	2,795	2,658
Physicists	2,586	2,433
Production supervisors	32,823	27,643
	160,598	133,187

B-3-a
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Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

ENGINEERING, SCIENCE, AND MANAGEMENT WAR TRAINING

List of Approved Courses

From July 1, 1942 Through July 31, 1942

CAPITALS indicate FULL-TIME courses; lower case, part-time. The city first listed is the location of the institution; other points at which instruction is given follow in parentheses. Subjects marked with an asterisk (*) are available in more than one city. Courses that have been approved but subsequently cancelled are omitted from this list. Further information about any course - content, prerequisites, time and place of next section, etc. - must be obtained from the respective institutions.

ALABAMA

Alabama Polytechnic Institute, Auburn (Anniston, Birmingham, Cullman, Decatur, Dothan, Florence, Gadsden, Guntersville, Howard, Huntsville, Mobile, Montgomery, Selma, Sylacauga, Talladega)

Air Conditioning, Industrial
Air Defense Engineering
Architectural Drafting*
Auditing
Carding Room Management
Chemical Engineering for Prodn. Supvn.*
Chemical Process Plant Equipment*
Chemical Production, Analytical Control of (Elementary) (In-service)*
Coke Oven By-products
Construction Engineering*
Construction Management
Cost Accounting*
Descriptive Geometry
Electric Furnaces
Electrical Engineering I, II
Engineering Drawing I*, II*
Engineering Materials
Engineering Mathematics, Advanced*
Engineering Mathematics, Elem. (In-s.)*
Engineering Physics (In-service)
Explosives & Chemical Warfare (In-s.)*
Fire Prevention Engineering
Foremanship Training*
Foundry Theory & Practice*
Highway Design
Highway Engineering*
Hydro-power Plant Engineering
Industrial Accounting*
Industrial Electricity*
Industrial Instrumentation*
Industrial Lubrication
Industrial Refrigeration
Machine Design
Machine Shop Management
Maintenance, Industrial*
Maintenance, Mechanical & Electrical*
Marine Machinery (In-service)
Materials Handling*
Materials Testing & Inspection
Metallurgy, Ferrous*
Naval Architecture
Office Management
Personnel Management*
Phosphorous & Calcium Compounds, Production of (In-service)
Physical Chemistry*
Plane Surveying
Production Control*
Production Engineering*
Radio, Fundamentals of I*, II*
Reinforced Concrete Design
Route Surveying
Safety Engineering
Ship Construction*
Ship Drafting
Shipfitters' Engineering
Spinning Room Management
Statistics, Industrial*
Steam Power Plants*
Structural Design
Structural Engineering*
Structural Timber Detailing
Textile Finishing & Dyeing
Textile Testing & Inspection
(continued)

B - 3 - b

Alabama Polytechnic Institute, (continued)

Timber Engineering
Tool Engineering
Topographic Surveying*
Traffic Management*
Weaving & Weave Room Methods
Welding Engineering*

University of Alabama, University (Anniston, Birmingham, Childersburg, Decatur, Dothan, Gadsden, Geneva, Greenville, Huntsville, Mobile, Montgomery, Selma, Sheffield, Sylacauga, Talladega)

Alternating Currents, Theory of
Blast Furnace Metallurgy (In-service)
Chemical Engineering of Explosives - Manufacture & Ammunition Loading
Chemical Engineering: Oper. & Equip.
Chemical Inspection & Control (In-s.)
Coal Mining Ventilation, Prin.of(In-s.)
Construction Estimating*
Direct Currents, Theory of
Employment Management
Engineering Calculations, Elem. (In-s.)
Engrg. Drawing & Engrg. Problems
Engrg. Drawing & Engrg. Problems, Adv.
ENGINEERING DRAWING & FUNDAMENTAL MATH.*
Executive Supervision (In-service)
Ferrous Metals & Their Alloys
Foremanship & Supervision*
Gages, Design & Checking of
Government Contract Procedure
Industrial Accounting*
Industrial Accounting Problems, Adv.*
Industrial Accounting, Principles of*
Industrial Chemistry*
Industrial Chemistry (In-service)
Industrial Cost Accounting (In-s.)*
Industrial Cost Accounting, Adv.
Industrial Electrical Control - A. C.
Industrial Instrumentation*
Industrial Management*
Industrial Materials, Adv.
Industrial Purchasing
Industrial Safety Engineering
Industrial Traffic Management*
Iron Ore Mining, Principles of
Labor Legislation (In-service)
Maintenance, Mechanical & Electrical
Maintenance, Mechanical & Elec. (Adv.)
Making, Shaping & Treating of Steel*
Marine Diesel Engines - Installation, Operation & Maintenance (In-service)
Materials, Purchasing & Procurement of*
Mechanics, Analytical
Metallurgy, Ferrous
Moment Distribution for Indeterminate Structures
Office Management*
Oils, Greases & Lubrication*
Operation Analysis*
Operation Analysis (Abbreviated)*
Ordnance Inspection: Coord. Course*
Ordnance Inspection: Coordination Course (Abbreviated)
Personnel & Industrial Psychology (Adv.)
Personnel Management*
Plane Surveying (Adv.)
Plant Organization & Layout*
Plant Protection & Supervision (In-s.)
Plant Research & Plant Operation(In-s.)
Powered Barge Construction, Princ. of
Production Control
Production Planning*
Radio Technology
Safety Engrg. for Explosive Manufacture*
Shipbuilding - Electric Machinery
Shipbuilding - Hulls
Shipbuilding - Job Control & Procedure Analysis
Shipbuilding - Planning & Scheduling
Ship Drafting
Stock Room Control*
Stress Diagrams
Testing, Destructive & Non-destructive
Time Study
Tool Engrg. for Ordnance Prodn. (In-s.)
Transportation & Traffic Mngmt.(2courses)

ARKANSAS

University of Arkansas, Fayetteville (Arkadelphia, Batesville, Conway, El Dorado, Forrest City, Fort Smith, Harrison, Helena, Hot Springs, Little Rock, Magnolia, Monticello, Pine Bluff, Russellville, Searcy, Siloam Springs)

MATHEMATICS*
Mathematics (In-service)
Mechanical Drawing*
PHYSICS*
Radio, Fundamentals of II*
Topographic Drafting*

CALIFORNIA

California Institute of Technology, Pasadena (Eagle Rock, Glendale, Long Beach, Los Angeles, San Bernardino, Whittier)

Aircraft Liaison Engrg. Procedure (In-s.)
Die Design & Press Work
Electric Welding, Theory & Science II
Engineering Mathematics
INDUSTRIAL DRAFTING
Plane Table Topography
PERSPECTIVE
Physics, Basic
PRODUCTION ILLUSTRATION
Production Illustration
Radio Fundamentals of I*, II*
Strength of Materials
Structural Design in Wood (In-service)
Tool Engineering

Occidental College, Los Angeles

Physics for Teachers

Stanford University, Stanford University (San Francisco)

Cost Accounting*
Fire Prevention & Protection Engineering (In-service)
Indl. Safety Engrg. Adv. II (In-s.)
Marine Elec. Theory & Apparatus (In-s.)
Marine Power Plant Tstg. & App. (In-s.)
Personnel Management (2 courses)
Priority & Allocation Procedures
QUALITY CONTROL IN INDUSTRY STATISTICAL ASPECTS OF (In-service)
RADIO TRAINING (SIGNAL CORPS)
Substitutions During Wartime

University of California, Berkeley (Burbank, Kentfield, Long Beach, Los Angeles, Martinez, Mill Valley, North Hollywood, Oakland, Sacramento, San Diego, San Francisco, San Pedro, Wilmington)

Aerodynamics for Designers (In-service)
Aircraft Analytical Geometry (In-s.)
AIRCRAFT DRAFTING
AIRCRAFT ENGINEERING DRAWING (In-s.)
Aircraft Industry Admin. (In-service)
Aircraft Matls. & Parts Control (In-s.)
Aircraft Production Control I, II (In-s.)
Antiaircraft Mathematics (In-service)
Corrosion Prevention in the Process Industries (In-service)
DIESEL ENGINE OPERATION, THEORY & PRACTICE OF (In-service)
ELECTRO ACOUSTICS
ELECTROMAGNETISM, APPLIED (U. S. Navy)
ENGINEERING DRAWING*
ENGINEERING DRAWING & COMPUTATIONS
Engineering Mathematics (Elem., Inter.)
Fuels & Lubricants in Automotive Equipment, Application of (In-s.)
Fuels & Lubricants in War Industries, Application of
Ind. Organization & Scientific Management (In-service)*
JR. ENGINEER TRAINING
Managerial Control, Accounting for (In-s.)
MARINE DRAFTING (In-service)
Marine Drafting
Marine Elec. Layouts & Computations (In-s.)
Non-destructive Tstg. of Metals (In-s.)
Operation Analysis, Manufacturing
Personnel Management
Personnel Management (In-service)
Personnel Prob. & Ind. Relations (In-s.)
PETROLEUM PRODUCTS, TESTING OF (Women)
Petroleum Refining (In-service)
PLANE SURVEYING*
Production Control (In-service)
Production Design I (In-service)
Production Management
Production Management Problems
Production Supervision I
RADIO COMMUNICATIONS (SIGNAL CORPS)
Shipyard Organization & Operation
Structural Detailing & Design*
Time & Motion Study (In-service)
ULTRA-HIGH FREQUENCY RADIO
Welding Instruction for Lead Men (In-s.)

University of Southern California, Los Angeles (Pomona, Wilmington)

Aircraft Die Casting Design (In-s.)
Aircraft Fabrication Methods (In-s.)
Aircraft Prodn., Methods of Sched. (In-s.)
ENGINEERING, BASIC
Extractive Metallurgy of Strategic Metals

(continued)

University of Southern California, (continued)

Foremanship, Fundamentals of (In-s.)
ORDNANCE INSPECTION
ORDNANCE INSPECTION (In-service)
Personnel & Labor Relations (In-s.)
Production Control
Purchasing & Materials Control
Radio, Fundamentals of II
Supervision & Management (In-service)
Ultra-high Frequency Radio (In-s.)
Technical Illustration for Aircraft Industry, Advanced (In-service)

COLORADO

Colorado School of Mines, Golden

Analytical Methods for Defense Materials
Metallurgy, Principles of

Colorado State College of A. & M. Arts, Fort Collins

Inspection Engineering
Mechanics of Flow in Open Channels (In-service)

University of Colorado, Boulder (Colorado Springs, Denver, Pueblo)

Engineering Drawing
Engrg. Drawing & Elem. Design II
Engineering Mechanics, Applied (In-s.)
Industrial Safety
Mathematics for Teachers
Physics - Teachers' Retraining Course
Radio I*
Safety Engineering (In-service)
WOMEN SUPERVISORS OF INSPECTION, SUPERVISION FOR (In-service)

CONNECTICUT

University of Connecticut, Storrs (Hartford, New London)

Drafting, Advanced
Drafting & Blueprint Interpretation Basic (In-service)
Drafting Room Practice
Electro-plating Principles & Techniques (In-service)
ENGINEERING, ELEMENTS OF
ENGINEERING DRAFTING FOR DETAIL DRAFTSMEN, INTENSIFIED (In-service)
ENGINEERING DRAFTING (VIII) FOR LAYOUT MEN & CHECKERS, INTENSIFIED (In-s.)
ENGINEERING DRAWING & ANALYSIS
Engineering Mathematics (In-service)
Engrg. Math. (Adv.) Appl. of (In-s.)
Foremanship & Supervision (In-s.)
Heat Treatment of Steel (In-service)
Industrial Chemistry (In-service)
INDUSTRIAL INSPECTION (In-service)
Industrial Production & Processes, Control of (In-service)
Mechanics, Applied (In-service)
Metals Protection (In-service)
Metallurgy (Appld.), Prin. of (In-s.)
Operation Sheet Writing (In-service)
ORDNANCE INSPECTION IV
Production Control
Punch & Die Design
Radio Technician Training I, II (Inten.)
Sheet Metal Drafting (Intensive)(In-s.)
Time & Motion Study (In-service)
Tool Engineering

Yale University, New Haven

Radio, Fundamentals of II

DELAWARE

University of Delaware, Newark (Wilmington)

Direct Currents (In-service)
Powder & Explosives, Chemistry of
Safety in Industry (In-service)
Welding Engineering (In-service)

DISTRICT OF COLUMBIA

Catholic University of America, Washington

Business Admin. & Mngmt. B (In-service)
Electrical Mach. & Circuits C (In-s.)
Electronics, Fundamental (In-service)
Engineering Drawing
Industrial Personnel Admin. B (In-s.)
Management Problems in Wartime (In-s.)
Materials Testing VII (In-service)
MATHEMATICS FOR HIGH SCHOOL TEACHERS
Mechanics & Mathematics, Elem. C (In-s.)
PHYSICS FOR HIGH SCHOOL TEACHERS
Structures, Elementary B (In-service)

FLORIDA

University of Florida, Gainesville (Jacksonville)

ENGINEERING, BASIC II (For Women)
Mathematics for High School Teachers
Physics for High School Teachers

GEORGIA

Georgia School of Technology, Atlanta (Columbus, La Grange, Macon, Rome, Savannah)

Cost Accounting
Engineering, Automotive (In-service)
Engineering Drawing*
Industrial Chemical Analysis
ORDNANCE INSPECTION (In-service)
Radio, Fundamentals of II*

IDAHO

University of Idaho, Moscow (Boise, Lewiston, Nampa, Twin Falls)

Radio, Fundamentals of I*, II*

ILLINOIS

Bradley Polytechnic Institute, Peoria

Cost Accounting
Employment Testing
Engineering Drawing
Engineering Mathematics (In-service)
Industrial Organ. & Scien. Mngmt.
Industrial Psychology
Industrial Safety Engineering
Mathematics for Engineers, Advanced
Mechanics, Applied
Motion & Time Study
Personnel & Industrial Relations

De Paul University, Chicago

BUSINESS ORGANIZATION
Chemical Laboratory Techniques
COST & BUDGET ACCOUNTING FOR DEFENSE INDUSTRIES
Cost & Budget Accounting for Defense Industries
Industrial Methods of Chemical Analysis & Control
INDUSTRIAL STATISTICAL METHODS
Industrial Statistical Methods
Personnel Management
PRODUCTION CONTROL

Illinois Institute of Technology, Chicago (Chicago Heights,Cicero,Maywood,Waukegan

Airplane Engines
Chemical Engineering, Elements of
Die Design
Diesel Engines
Elec. Motors & Control in Ind. (In-s.)
(continued)

Illinois Institute of Technology, (continued)

Elec. Motors & Control in Ind. (Adv., Ins)
Electrical Engrg. (A.C.), Elements of
Electrical Engrg. (D.C.), Elements of
ELECTRONICS & ULTRA-HIGH FREQUENCY TECHNIQUES, Advanced (In-service)
Explosives
INDUSTRIAL DRAFTING FOR WOMEN
INDUSTRIAL ENGINEERING, FUND. OF
Industrial Management for Foremen (In-s)
Industrial Safety Engineering (In-s.)*
Industrial X-rays (In-service)
Metallography (In-service)
Metallurgy
ORDNANCE INSPECTION (In-service)
Personnel Problems
Production Inspection
Production Methods, Advanced
Radio, Introduction to
Radio Measurements (2 courses)
RADIO MEASUREMENTS & ELECTRONICS (In-s.)
Radio Practice, Modern
SAFETY ENGINEERING, EXPLOSIVES
Time & Motion Study (In-service) (2 c.)
Tool Design
Tool Inspection (In-service)
Welds, Inspection of (In-service)

Northwestern University, Evanston

Algebra I, II
Drafting, Engineering
Drafting, Machine
Drafting, Ship
INDUSTRIAL ENGINEERING, FUND. OF
Machine Design, Elementary
Metallurgy & Metallography of Iron & Steel
Naval Architecture
Plane Trigonometry
Plastics, Chem. & Physical Properties of
Plastics Engineering, Elementary
Plastics Production & Fabrication
Precision Gaging & Inspection
Solid Geometry & Spherical Trigonometry

University of Chicago, Chicago

Optical Shop Work
PRE-ELECTRONIC INSTRUC. TRAINING (Women)

University of Illinois, Urbana (Decatur, Dixon)

ENGRG. AIDES (AIRC. RADIO) (Sig. Corps)
Safety Engineering (In-service)
Supervisory Training (In-service)

INDIANA

Purdue University, Lafayette (Bloomington, Dunkirk, East Chicago, Elkhart, Evansville, Fort Wayne, Gary, Indianapolis, Jeffersonville, Marion, Muncie, Noblesvil

Airplane Construction, Principles & Practice I, II (In-service)
Chemical Engrg. for Prodn. Supvn.
DIESEL ENGINE OPERATION, THEORY & PRACTICE OF (In-service)
Electrical Engineering (A.C.) (In-s.)
Electrical Engineering (D.C.) (In-s.)
Engineering Drafting (In-service) (2 c.)
ENGINEERING FUNDAMENTALS FOR ENGINEERING AIDES (Signal Corps)
Engineering Mathematics II (In-service)
Engineering Math. for Mach. Ind. (In-s.)
INDUSTRIAL DRAFTING FOR WOMEN
Industrial Engineering, Fund. of (In-s.)
Industrial Safety (In-service)
Machine Design (In-service)
Manufacturing Cost Control for Industrial Engineers (In-service)
Precision Measure. in Mach. Ind. (In-s.)
Production Engineering I (In-service)
Radio Engineering, Fund. of (In-s.)
Radio, Fundamentals of I (In-s.), II
Time & Motion Study (In-s.) (2 courses)
Work Simplification, Intro. to (In-s.)

IOWA

Drake University, Des Moines

College Algebra
PHYSICS HEAT & MECHANICS (Elem.)

Iowa State College, Ames (Ottumwa)

Radio, Fundamentals of II
ULTRA-HIGH FREQUENCY TECHNIQUES

State University of Iowa, Iowa City

Radio, Fundamentals of I

KANSAS

Kansas State College of Agriculture & Applied Science, Manhattan

ENGINEERING DRAWING
PRODUCT INSPECTION (For Women)

University of Kansas, Lawrence (Clay Center, Concordia, Ft. Scott, Hutchinson, Independence, Iola, Kansas City, Newton, Pittsburg, Topeka, Wichita, Kansas; Kansas City, St. Joseph, Missouri)

Aircraft Materials & Construction Processes*
Chemistry of Powder & Explosives B, II
Engineering Drawing*
Industrial Accounting*
Mathematics & Mechanics (In-service)
Personnel Management*
Radio, Fundamentals of I*, II*
Strength of Materials
Structural Steel Inspection (In-s.)

KENTUCKY

University of Kentucky, Lexington

INTERNAL COMBUSTION ENGINE MAINTENANCE ENGINEERING (In-service)

University of Louisville, Louisville (Jeffersonville, Indiana)

Chemical Industrial Microbiology (In-s.)
Personnel & Production Supvn. (In-s.)
Practical Distillation, Elem. of (In-s.)
Prodn. Control for Chem. Plants (In-s.)
Radio Circuits & Equipment

LOUISIANA

Louisiana Polytechnic Institute, Ruston (Shreveport)

Engineering Drawing
PHYSICS & MATHEMATICS, FUNDAMENTAL
Radio, Fundamentals of II

Loyola University, New Orleans

Business Statistics
Employment Management
Government Defense Contract Problems
MATHEMATICS FOR INSTRUCTORS
Physics: Applied Acoustics
PHYSICS FOR INSTRUCTORS
Quantitative Analytical Chemistry & Technical Analysis
Radio Physics, Elementary

Southwestern Louisiana Institute, Lafayette

Radio, Fundamentals of II: Intensive Radio Technician Training

Tulane University, New Orleans

Cartography (Advanced (A), Elementary)
Electricity, Fundamentals of (In-s.)
Engineering Drawing (3 courses)
Naval Architecture & Marine Engineering
Radio, Fundamentals of I, II
Safety Engineering (In-service)
Ship Drafting (Hulls A, B. C.) (3 c.)
Surveying I
Structural Drafting I

MAINE

University of Maine, Orono (Portland)

CHEMISTRY, ANALYTICAL
Engineering Drafting, Elementary
Industrial Safety Engineering*
MACHINE TOOL ENGINEERING
MATERIALS ENGINEERING & INSPECTION
MATHEMATICS FOR TEACHERS
PHYSICS FOR TEACHERS
RADIO COMMUNICATION
STRUCTURAL DRAFTING
SURVEYING & MAPPING
WELDING ENGINEERING

MARYLAND

Johns Hopkins University, Baltimore

AIRCRAFT ASSEMBLY INSPECTION
ENGINEERING, BASIC (For Women)
Metallurgy, Ferrous (In-service)
Metallurgy, Foundry (In-service)
METALS, ANALYSIS & TESTING OF (B)
Photogrammetry & Surveying, Elementary

University of Maryland, College Park (Washington, D. C.)

AIRCRAFT MATERIALS & INSPECTION
Engrg. Contracts & Specifications (In-s.)
RADIO COMMUNICATIONS I
Radio, Principles of II

MASSACHUSETTS

American International College, Springfield

Amortization Problems of Defense
  Equipment & Construction
Application of Present Day Cost
  Systems to Ordnance Contracts
Foreman Training
Industrial Relations, Principles of
Inspection & Waste Control,
  Statistical Methods of

Boston College, Newton

Applied Physics, Principles of
Optical Instruments, Theory & Prac. of
Optics, Experimental
Radio Communications, Mathematics of (In-
Radio Communications Measurements
Radio Communications, Physics of

Harvard University, Cambridge

ELECTRONICS & CATHODE RAY TUBES

Lowell Textile Institute, Lowell

Electricity, Elements of
Engineering Drawing, Advanced
Textile Testing

Massachusetts Institute of Technology, Cambridge (Boston)

DEGAUSSING COURSE FOR NAVAL ORDNANCE III
Ordnance Inspection
ULTRA-HIGH FREQUENCY TECHNIQUES* (In-s.)

Massachusetts State College, Amherst

CHEMICAL DECONTAMINATION PROBLEMS

Northeastern University, Boston (Babson Park, Springfield, Watertown)

Cost Accounting for Control
Engineering Drawing (Adv., Elem.)
Engineering Drawing (In-service)
Engineering Drawing (For Women)
Engineering, Methods
Foreman Training
INDUSTRIAL MANAGEMENT
(continued)

Northeastern University, (continued)

Industrial Safeth Engineering (In-s.)
INDUSTRIAL STATISTICS
MAP DRAFTING & INTERPRETATION
Materials Inspection (In-service)
Mathematics, Applied (In-service)
Metallography
OFFICE MANAGEMENT FOR WOMEN
Ordnance Inspectors, Drafting for
Production Engineering Practices (In-s.)
PRODUCTION ENGINEERING & SUPERVISION*
Production Planning & Control
RADIO, FUNDAMENTALS OF I, II
Radio, Fundamentals of I, II

Wellesley College, Wellesley

Radio, Fundamentals of II

MICHIGAN

Detroit Institute of Technology, Detroit

Aircraft Construction & Materials
Auditing Procedures
Budgetary Control
Cost Control for War Production
Engineering, Methods
Engineering Tools & Processes
Foreman Training
Government Contract Procedure & Accounting
Industrial Accounting
Industrial Materials Handling
Industrial Organization & Management
Industrial Psychology
Labor Problems & Labor Law
Metallurgy, Ferrous & Non-ferrous
Office Management
Personnel Mngmt. & Employment Tests
Radio, Fundamentals of II
Statistical Methods, Applied
Technical Report Writing
Time & Motion Study
Time, Motion & Methods Study, Applied
Tool & Die Design
Wartime Purchasing Procedures

Lawrence Institute of Technology, Highland Park

Auto & Aircraft Engine Testing (In-s.)
Descriptive Geometry (In-service)
Die Design
Engineering Drawing
Financial Engineering (In-service)
Industrial Electronics
Industrial Plastics I, II
Materials & Inspection
Materials Testing (In-service)
Mechanics
Mechanical Inspection of War Materials
Mechanical & Structural Detailing
Metallurgy of Iron & Steel
PHYSICS FOR HIGH SCHOOL TEACHERS
Radio Equipment, Maintenance of
RADIO, FUNDAMENTALS OF
Radio Transmitters
Simple Steel Structures
Spectroscopy
Strength of Materials
Time & Motion Study
Tool Design
Tool & Fixture Design

Michigan College of Mining & Technology, Houghton (Sault Ste. Marie)

Electrical Communication, Fund. of
Radio, Fundamentals of II

Michigan State College, East Lansing (Grand Rapids, Kalamazoo)

Engineering Drawing & Empirical Design
Gages & Gaging Practice
Hydraulics
Metallurgy, Principles of
Radio, Fundamentals of I*, II

University of Detroit, Detroit

Aircraft Hydraulic Equipment
Aircraft Layout & Lofting Procedures
Aircraft Production Methods & Control
Engineering, Methods
Engineering Techniques, Elementary
(continued)

University of Detroit, (continued)

Foreman Conference Leadership
Joint Relations & Collective Bargaining
Mathematics, Applied (2 courses)
Materials Inspection & Testing
Mechanical Drawing
Personnel Selection
Production Measurement & Inspection
Radio, Fundamentals of I, II
Surveying, Elementary
Tool Engineering
Topographic Mapping (2 courses)

University of Michigan, Ann Arbor

ENGINE ACCEPTANCE TESTING (In-service)
Mechanical Drawing (In-service)
ORDNANCE MATERIALS INSPECTION (In-s.)
SURVEYING, TOPOGRAPHIC MAPPING & PHOTOGRAMMETRY

MINNESOTA

St. Olaf College, North Field

Radio, Fundamentals of II

University of Minnesota, Minneapolis

Mathematics, Basic Content for Teachers of High School
Mathematics with Wartime Orientation for High School or Jr. College
ORDNANCE INSPN. FOR CIVIL SERVICE V
Physics with Wartime Orientation (In-s.)

MISSISSIPPI

Mississippi State College, State College (Meridian, Pascagoula, Vicksburg)

Industrial Statistics (In-service)
MATHEMATICS (For Teachers)
Operation of Hydraulic Machinery, Problems in (In-service)
PHYSICS (For Teachers)
Plane Land Surveying & Drafting
Production Engineering in Ship Building
River Flow Problems, Advanced (In-s.)
Ship Design & Construction
Topographic Map Drafting II

University of Mississippi, University (Memphis, Tenn.; Pontotoc, Miss.)

Mathematics for Teachers
Office Management
Physics for Teachers
Time & Motion Study

MISSOURI

St. Louis University, St. Louis

ANALYSIS, ELEMENTARY I, II
ELECTRICITY & RADIO
PHYSICS, ESSENTIALS OF

University of Missouri, Columbia

Radio, Fundamentals of II

Washington University, St. Louis

ORDNANCE INSPECTION

NEBRASKA

University of Nebraska, Lincoln (Grand Island, Omaha)

AIRCRAFT ASSEMBLY INSPECTION
Bomb Filling Inspection A, B*
BOMB FILLING INSPECTION (In-service)
Industrial Safety Engineering
PHYSICS FOR HIGH SCHOOL TEACHERS
Production Planning
Radio, Fundamentals of I, II
Tool & Die Engineering (In-service)

NEW HAMPSHIRE

University of New Hampshire, Durham (Portsmouth)

Soil Mechanics (In-service)

NEW JERSEY

Newark College of Engineering, Newark MATHEMATICS FOR HIGH SCHOOL INSTRUCTORS

Princeton University, Princeton (Bound Brook)

Organic Chemistry, Adv. A, B (In-s.)

Rutgers University, New Brunswick (Bayonne, Bridgeton, Elizabeth, Hackensack, Jersey City, Kearny, Passaic, Paterson, Penns Grove, Perth Amboy, Rahway, Trenton, Woodbury)

Engineering, Methods*
Engineering, Methods (Applied)*
Industrial Safety (In-service)*
Management Problems Under Priority Control (In-service)*
Mark 50 Gun Director Inspection (In-s.)
Power Plant Engineering (In-service)
Production Supervision: Human Prob.(In-s)
RADIO COMMUNICATION (Pre-Radar) (In-s.)
Radio Technician Training Course I
Time Study (In-service)*

University of Newark, Newark

Auditing
Traffic Management & Rating

NEW MEXICO

New Mexico College of A. & M. Arts, State College

SURVEYING, ADVANCED
TOPOGRAPHIC SURVEYING

NEW YORK

The City College of the College of the City of New York, New York (Brooklyn, Flushing, Jamaica, Long Island City)

Chemistry of Powder & Explosives B
Cost Procedure & Analysis for War Industries (In-service)
Ferrous & Non-ferrous Ordnance Matls.: Physical Properties & Methods of Tstg.
Heating & Air Conditioning Systems, Estimating, Layout & Design of
Industrial Heat Exchanger Design
Industrial Safety Engineering (In-s.)*
Mathematics & Elec. Engrg. Applications
Metal Products Inspection: Elements of Blueprint Reading
Metal Products Inspection: Physical Metallurgy
Metal Products Inspection: Physical Testing
Metal Products Inspection: Specifications, Gaging & Inspection
PLANE TABLE TOPOGRAPHY & PHOTOGRAMMETRY, ELEMENTARY
Plant Revision, Buildings & Layout Problems in War Industries (In-s.)
Radio, Fundamentals of I*, II
SUB-PROFESSIONAL ENGINEERING COURSE VI
Welding, Technical Elements of

Columbia University, New York

Photogrammetry
Statistical Methods, Elementary (In-s.)
Statistical Methods in Management (In-s.)
Transportation Control (In-service)

Cornell University, Ithaca (Bath, Binghamton, Corning, Elmira, Jamestown Niagara Falls, Olean, Poughkeepsie)

DIESEL ENGINES: THEORY, OPERATION & MAINTENANCE (In-service)
ENGINEERING TRAINING FOR INDUSTRY
ORDNANCE MATERIAL INSPECTION III
Radio, Fundamentals of I*
Structural Drafting (In-service)
Time & Motion Study (In-service)

Hunter College of the City of New York, New York

Radio, Fundamentals of II

Manhattan College, New York

Electrical Equipment, Tstg. & Inspn. of
ELEC. & RADIO FOR HIGH SCHOOL TEACHERS
Engineering Drawing
Industrial Safety (In-service)
Metals Testing
Production Management (In-service)
Radio, Fundamentals of II
Ship Drafting (Elem., Inter.)(In-s.)
Topographic Map Making
Traffic & Transportation Control (In-s.)

New York University, New York

ORDNANCE MATERIAL INSPECTION (In-s.)
PRODUCTION MANAGEMENT
TOPOGRAPHICAL DRAFTING
ULTRA-HIGH FREQUENCY (ELECTRONICS II)

Niagara University, Niagara Falls

Accounting, Specialized Systems
Auditing & Internal Control for War Industries
Chemistry, Industrial
Chemistry, Inorganic (Elem.) (In-s.)
Chemistry, Organic (Elem.)
Cost Accounting in War Industries
Fixed & Variable Budgetary Control
Industrial Labor Problems
Industrial Statistics
Personnel Supervision, Techniques of
Purchasing & Stores Control
Quantitative Analysis

Polytechnic Institute of Brooklyn, Brooklyn

Electronics, Elements of
ENGINEERING COURSE, SUB-PROFESSIONAL V
Structural Details

Pratt Institute, Brooklyn

Aerial Bombardment Protection (In-s.)
Mathematics, Teachers' Course in
Physics, Teachers' Course in I

Rensselaer Polytechnic Institute, Troy (Albany, Schnectady)

Accounting & Auditing, Advanced (In-s.)
Airports & Highways (In-service)
Chemistry of Plastics (In-service)
Cost Accounting (In-service)
Engineering Metallurgy
Engineering Metallurgy, Adv. (In-s.)
Industrial Safety Engineering (In-s.)
Machine Design (In-service)
Materials Testing & Inspection (In-s.)
Motion & Time Study (In-service)
Photogrammetry
Production Engineering (In-service)
Production Planning & Control
Production Supervision
Radio Engineering I
Radio Engineering II (In-service)
Radio, Fundamentals of II*
Soil Mechanics (In-service)
Structures, Advanced (In-service)
Structural Engineering (In-service)
Surveying Theory (In-service)
Traffic Management, Advanced (In-s.)
Transportation of Materials (In-service)

Syracuse University, Syracuse (Geneva, Oneonta, Oswego, Utica, Wanakena)

Engrg. Mathematics, Essentials of (In-s.)
Industrial Instrument Analysis
Mechanical Drawing
Office Organ., Supvn., & Mngmt. (In-s.)
Radio, Fundamentals of I*, II*
(Radio Technician Training)
SURVEYING & TOPOGRAPHIC MAPPING, ELEM. & ADVANCED (Option II)

University of Buffalo, Buffalo

Radio Technician Training Course I (In-s)

Vassar College, Poughkeepsie

Radio, Fundamentals of

NORTH CAROLINA

Agricultural & Technical College of North Carolina, Greensboro (Durham, Raleigh, Winston-Salem)

Engineering Drawing
Mathematics for High School Teachers
Organic Chemistry, Basic
Radio Communications*

Duke University, Durham

CHEMISTRY OF EXPLOSIVES B
MATHEMATICS FOR HIGH SCHOOL TEACHERS

North Carolina College for Negroes, Durham

Accounting, Principles of
Industrial Psychology
Personnel Administration
Personnel Problems (In-service)
Statistical Analysis, Elementary

North Carolina State College, Raleigh (Asheville, Charlotte, Fayetteville, Gastonia, Greensboro, Hickory, High Point, Kinston, Rocky Mount, Salisbury, Sanford, Wilmington, Winston-Salem)

Engineering, Methods
Industrial Safety Engineering (In-s.)*
Radio Communications*
Ultra-high Frequency Techniques II

University of North Carolina, Chapel Hill (Greensboro)

MATHEMATICS FOR HIGH SCHOOL TEACHERS
PHYSICS FOR HIGH SCHOOL TEACHERS
Production Cost Accounting

NORTH DAKOTA

North Dakota Agricultural College, Fargo

COLLEGE MATHEMATICS
ENGINEERING DRAWING

University of North Dakota, Grand Forks

CHEMISTRY OF POWDER & EXPLOSIVES A, B
LABOR & PERSONNEL MANAGEMENT

OHIO

Antioch College, Yellow Springs (Dayton)

Metallography*

Case School of Applied Science, Cleveland (Lorain, Painesville, Ravenna, Warren)

Industrial Safety Engineering (In-s.)*
Route Surveys & Earthwork
Topographic Map Drafting

Ohio Northern University, Ada (Findlay, Lima, St. Marys, Troy)

Electrical Testing, Advanced
Engineering Mathematics, Adv. (In-s.)
Materials Inspection & Testing
Safety Engineering (In-service)

Ohio State University, Columbus

Algebra
Electricity & Magnetism
EXPLOSIVES, CHEMISTRY OF
INDUSTRIAL X-RAYS
Inspection (Defense Materials & Products)
Mechanics of Solids & Fluids
Production Control I
Trigonometry

Ohio University, Athens (Middleport)
Plane Surveying Theory

University of Cincinnati, Cincinnati

Mathematics of Radio Circuits, Prac.
Modern Supervision, Techniques of Production Supervision

University of Dayton, Dayton (Wilmington)

Intensive Radio Technicians Training Course II
Plant Management
Time & Motion Study

Western Reserve University, Cleveland
Mathematics for Teachers, General

OKLAHOMA

Oklahoma A. & M. College, Stillwater (Enid)

Aircraft Inspection
Physics, General (In-service)

University of Oklahoma, Norman (Ada, Alva, Ardmore, Bartlesville, Chickasha, Duncan, Durant, Enid, Lawton, McAlester, Miami, Muskogee, Oklahoma City, Okmulgee, Ponca City, Sallisaw, Sapulpa, Sand Springs, Shawnee)

Aerial Photographs, Interpretation of
Cost & Industrial Accounting*
Engineering Drawing I*
Industrial Personnel Management*
Industrial Safety Engineering*
Radio Theory & TechniqueI*

University of Tulsa, Tulsa
Engineering Drawing
Radio, Fundamentals of I

OREGON

Oregon State College, Corvallis (Booth, Eugene, Klamath Falls, Portland, Seaside, Tillamook)

Industrial Safety Engineering IV (In-s)*
Radio Communications, Fundamentals of III B (In-service)

PENNSYLVANIA

Bryn Mawr College, Bryn Mawr
CHEMISTRY, ANALYTICAL (In-service)

Bucknell University, Lewisburg

Chemical Engineering for Production Supervision
Metallurgy & Metallurgical Testing
Radio Communications, Elements of
Surveying Instruments (Use) & Surveying Field Procedure II

Carnegie Institute of Technology, Pittsburgh

Metallurgy of the Steel Foundry (In-s.)
ORDNANCE INSPECTION (In-s.

Drexel Institute of Technology, Philadelphia, (Upper Darby)

Aeronautical Engineering, Introductory*
Engineering, Elem. of III A, IV A (In-s.)
RADIO COMMUNICATIONS (PRE-RADAR) (In-s.)

Haverford College, Haverford

Engineering, Elements of

Pennsylvania Military College, Chester

Engineering, Elements of

Pennsylvania State College, State College (Allentown, Avonmore, Bradford, Erie, Hamburg, Homer City, Philadelphia, Pittsburgh, Reading, Sunbury, Watsontown)

Aircraft Drafting
DIESEL ENGINEERING (In-service)
Industrial Drafting (In-service)
Industrial Mngmt. for Prodn. Supvn.*
Petroleum Laboratory Technique (In-s.)
Prodn. Supvn. for SKF Industries
Radio Communications, Elements of
Ship Construction & Drafting (Hull)
Steel Castings (In-service)
Unfired Pressure Vessels (Design)(In-s.)

Swarthmore College, Swarthmore (Chester)

Engineering Drawing & Math. I (Women)
Orthographic Projection, Prin. of (In-s.)
SURVEYING, MAPPING & PHOTOGRAMMETRY

Temple University, Philadelphia (Camden, N. J.; Swarthmore, Pa.)

Chemistry of Metals (In-service)
Foremanship Training (In-service)
Radio, Fundamentals of I*, II

University of Pennsylvania, Philadelphia (Camden, N. J.; Chester, Pa.)

Accounting, Defense Contract (In-s.)*
Communication Networks
Electronics, Basic
Industrial Procurement
Industrial Safety Training for
  Supervisors A, B (In-service)
Job Analysis & Evaluation (In-service)
MATH. FOR BALLISTIC CALCULATIONS (In-s.)
Metal Manufacturing Methods (In-s.)
Motion & Time Study (Adv., Elem.)
PRODUCTION CONTROL (Ordnance Corps)
Production Engineering
Production Supervision
Radio Engineering Problems (In-service)
Safety Engrg. (Adv.*, Elem.*) (In-s.)
Shipbuilding - Matls. & Equip. (In-s.)
Supervisor Training (Signal Corps)
Supervisory Problems in Handling
  Men, Elem.
Supervisory Problems in Handling
  Workers (For Women)
Ultra-high Frequency Techniques I
Ultra-high Frequency Aircraft
  Transceivers, Testing of VI (In-s.)
Ultra-high Wave Guides &
  Propagation (In-service)

Villanova College, Villanova (Philadelphia)

Engineering, Elements of*
Heat Power Engineering, Basic (In-s.)
Marine Power Plant Calculations (In-s.)

RHODE ISLAND

Brown University, Providence (Newport)

Chemical Quantitative Analysis -
  Instrumental Methods (In-service)
Electrical Engineering Laboratory(In-s.)
Hydraulics (In-s.)
Jig, Fixture & Tool Design (In-s.)*
Machine Design, Analytical (In-s.)
Machine Drafting (In-service)
(continued)

Brown University, (continued)

MECHANICS, INSTRUCTION & RESEARCH IN (Advanced)
Metallurgy, Elementary (In-service)
Optical Parts & Systems, Design & Production of
Press Tool Design (In-service)
Radio, Fundamental Principles of
Screw Machine Tool & Cam Design (In-s.)
Structural Analysis & Design (In-s.)
Vibrations, Theory of (In-service)

Rhode Island State College, Kingston

MATHEMATICS FOR HIGH SCHOOL TEACHERS
PHYSICS FOR HIGH SCHOOL TEACHERS

SOUTH CAROLINA

The Citadel, Charleston

Aerial Bombardment Protection (In-s.)

Clemson Agricultural College, Clemson (Greenville)

Engineering Drafting

University of South Carolina, Columbia

Aircraft Drafting
Aircraft Engine Inspection (In-service)
Aircraft Inspection (In-service)
Radio, Fundamentals of I, II (In-s.)

TENNESSEE

University of Tennessee, Knoxville (Chattanooga, Johnson City, Memphis, Milan, Murfreesboro)

Descriptive Geometry & Applied Orthographic Projection (In-service)
Electric Circuits, Elementary (In-s.)
Engineering Drawing*
Engineering Mathematics (In-service)
Engineering Math., Applied(Elem.)(In-s.)
Foremanship & Supervision
Hydraulic Structures of Hydroelectric Developments II (In-service)
Industrial Accounting
Industrial Safety Engineering (In-s.)*
Machine Design (In-service)
Machinery (D.C.), Elements of (In-s.)
Mathematics for High School Teachers
MATHEMATICS FOR HIGH SCHOOL TEACHERS (Negroes)
Physics for High School Teachers
PHYSICS FOR HIGH SCHOOL TEACHERS(Negroes)
Power Engineering, Elements of (In-s.)
Radio Technicians II*
Radio Technology I*
Surveying, Advanced (In-service)
Wage Incentive Methods in War Prod.(In-

Vanderbilt University, Nashville

Engineering Drawing (Adv., Elem.)
Industrial Accounting
Machine Drawing & Elementary Design
Materials Testing & Inspection
Radio, Fundamentals of I, II
Safety Engineering

TEXAS

A. & M. College of Texas, College Station (Baytown, Beaumont, Fort Worth, Galveston, Houston, San Antonio)

Assembly Practice, Final
Camp & Emergency Sanitation
CAMP SANITATION
Chemical Engrg. Process Design (In-s.)
Cost Accounting*
Industrial Mathematics*
MALARIA CONTROL
Map Drafting*
Materials Inspection*
Mechanics of Materials*
Personnel Administration
Personnel Administration, Case Studies in
Petroleum Refining (In-service)
Production Planning & Material Control
Ship Production (In-service)*
Structural Drafting*
Surveying & Mapping
Trigonometry, Engineering Applications of

Hardin-Simmons University, Abilene

Chemistry of Sanitation

North Texas State Teachers College, Denton

Mathematics for Prospective Math. Teachers, Refresher Course in
ORGANIC CHEMISTRY.

Rice Institute, Houston

Mathematical Analysis

Southern Methodist University, Dallas (Commerce, Garland, Greenville, Sherman)

Aircraft Drafting*
Aircraft Materials Inspection (In-s.)
Engineering Drawing (Negroes)
Foremanship & Supervision (In-s.)
Industrial Safety (In-service)*
Industrial Safety (In-s.) (Negroes)
MATHEMATICS FOR HIGH SCHOOL TEACHERS*
PHYSICS FOR HIGH SCHOOL TEACHERS*
RADIO COMMUNICATION (PRE-RADAR) (In-s.)

Texas Christian University, Fort Worth

MATHEMATICS FOR HIGH SCHOOL TEACHERS
PHYSICS

Texas College of Arts & Industries, Kingsville (Corpus Christi)

Chemical Engineering Processes
Engineering Drawing
Radio, Fundamentals of II*
Surveying

Texas Technological College, Lubbock (Amarillo, Brownwood, San Angelo, Wichita Falls)

MATHEMATICS FOR HIGH SCHOOL TEACHERS*
PHYSICS FOR HIGH SCHOOL TEACHERS*

University of Houston, Houston

Chemical Laboratory Technique
Industrial Traffic Management (In-s.)
Office Organization & Management

University of Texas, Austin (Beaumont, Dallas, Edinburg, Fort Worth, Galveston, Houston, Huntsville, Marshall, Nacogdoches, Paris, San Antonio, Texarkana, Tyler, Waco, Wichita Falls)

Aircraft Drafting, Advanced
Aircraft Drafting & Mathematics
Aircraft Lofting*
Aircraft Template Development*
Aircraft Tool Planning
Architectural Engrg. Drawing Adv. III
ARCHITECTURAL ENGRG. DRAWING, ELEMENTS OF
Emergency & Camp Sanitation
MATHEMATICS FOR HIGH SCHOOL TEACHERS*
Naval Architecture
PHYSICS FOR HIGH SCHOOL TEACHERS*
Radio, Fundamentals of I,* II*
Welding Metallurgy & Ship Constrn. (In-s)

UTAH

University of Utah, Salt Lake City (Cedar City, Logan, Price, Provo)

Radio, Fundamentals of II*

VIRGINIA

University of Richmond, Richmond

Radio, Fundamentals of II

University of Virginia, Charlottesville (Portsmouth)

Bombardment Protection (In-service)

Virginia Polytechnic Institute, Blacksburg (Norfolk)

Aircraft Power Plants, Engineering Principles & Applications of II
Aircraft Sheet Metal Design, Adv.
Electricity (D.C.), Principles of
Engineering Aerial Surveying
ENGINEERING DRAFTING
Engineering Drafting I, II
Engineering Drafting, Applications of
Engineering Mathematics I, II (In-s.)
ENGINEERING SURVEYING & TOPOGRAPHIC MAPPING
Industrial Supervision & Management
Radio, Fundamentals of II, III
Refrigeration & Air Conditioning, Principles & Practice in
Reinforced Concrete & Foundations I
Surveying & Topographic Mapping I, II
Topographic Mapping, Engrg. Appl. of

WASHINGTON

University of Washington, Seattle (Cathlamet, Neah Bay, Vancouver)

Industrial Safety (In-service)*
Radio Techniques II
Welding Technology for Supervisors (In-s.)

WEST VIRGINIA

West Virginia University, Morgantown (Beckley, Benwood, Bluefield, Charleston, Clarksburg, Fairmont, Follansbee, Huntington, Montgomery, Parkersburg. Weirton, Wheeling)

Combustion Engineering II
Drawing & Design I*, II*
Electrical Engineering I*
Engineering Mathematics, Applied I*, II
Machine Design
Management Engineering - Time Study
Mechanics, Applied I*, II
Metallurgy I*, II, III*
Process Engineering (Chemical)*
Production Supvn., Human Problems in
Radio, Fundamentals of I
Structural Design, Elementary
Surveying I*, II*
Testing & Inspection I*, II

WISCONSIN

University of Wisconsin, Madison (At Approximately 25 Centers in Wisconsin)

Chemistry, Elementary*
Engineering Drawing
Engineering Mathematics, Applied*
Engineering Sketching & Advanced Blueprint Reading*
Industrial Cost Accounting
Industrial Relations, Psychology of
Ind. Relations, Psychology of (Adv.)(In
Industrial Safety Engineering (In-s.)
Mathematics for Electricians & Radiomen*
Office Management
Personnel Management*
Plant Protection for Defense Inds.*(In-s.
Radio, Fundamentals of I*, II*
Time & Motion Study, Fund. of (In-s.)*

WYOMING

University of Wyoming, Laramie (Casper, Cheyenne, Sheridan)

Radio Communication, Beginning*

PUERTO RICO

University of Puerto Rico, Mayaguez

Illumination Design & Interior Wiring
Surveying, Practical

Pages missing in original

ESMWT-Misc. 47

FEDERAL SECURITY AGENCY
U. S. OFFICE OF EDUCATION
WASHINGTON

**ENGINEERING, SCIENCE, AND
MANAGEMENT DEFENSE
TRAINING**

September 3, 1942

TO: ESMWT Institutional Representatives

SUBJECT: Courses Not Within the ESMWT Program

Gentlemen:

The Appropriation Act establishing the ESMWT program provides "for short courses of college grade...designed to meet the shortage of engineers, chemists, physicists, and production supervisors in fields essential to the national defense." No course can be approved which is not within this field.

More precise definition of the ESMWT field of training has been made from time to time by reference of proposed courses of instruction to legal counsel, by conference with representatives of other interested agencies, and by staff consultation. In general, each course should train for a specific activity to meet a war need within the four named classifications.

The following list of subjects is illustrative, but not all-inclusive, of courses which do not come within the ESMWT program and must therefore be disapproved unless exceptional conditions, fully stated in the proposal, show that the planned course is clearly within the above definition.

Letter Writing
Business Communications
Office Machine Operating
Elementary Accounting
Navigation
Pilot Training
Courses for Enlisted Men
  in the Armed Forces
Radio or Telegraph Code Practice
Camouflage
Meteorology or Weather Forecasting
Medical Laboratory or Clinical
  Techniques for Hospital Service
Management for Government Departments

This memorandum is issued for the information of those who prepare proposals in order that the labor of preparing proposals for unacceptable subjects may be avoided.

Very truly yours,

Geo W Case

George W. Case
Director

FOR DEFENSE
BUY
UNITED
STATES
SAVINGS
BONDS
AND STAMPS

42 196

42

UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary

WOMEN'S BUREAU
MARY ANDERSON, Director

"EQUAL PAY" FOR WOMEN IN WAR INDUSTRIES

Men's and Women's Jobs
Light Work
Saving Skilled Labor
Output
Plant Changes
Women Workers: Pro and Con
Women Support Families
Government Upholds the Rate for the Job
Unions Uphold the Rate for the Job
Women's Pay Rates in War Industries
The Rate for the Job
Needs of Industry and Workers

BULLETIN No. 196 OF THE WOMEN'S BUREAU

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1942

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - - - - Price 10 cents

See Folder on "Equal Pay"

LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, October 3, 1942.

MADAM: It is of the utmost importance to the men leaving industry for the armed forces, as well as to the women war workers, that wage standards should be maintained at this time when large new groups of women are carrying on war industry production.

I therefore take pleasure in submitting to you a report showing the findings of the Women's Bureau as to various aspects of the subject of women's wage rates.

The recommendations made are based on reports of Women's Bureau field agents who have made recent visits to plants engaged in war production, and on some of the best experience available in this country and England. The material was brought together and the report written by Mary Elizabeth Pidgeon, chief of this Bureau's Research Division.

Respectfully submitted.

MARY ANDERSON, *Director*.

Hon. FRANCES PERKINS,
Secretary of Labor.

"EQUAL PAY" FOR WOMEN IN WAR INDUSTRIES

Women in industry today are working side by side with men with similar duties. Many women also are taking over work formerly done only by men. There is no doubt that such cases will increase markedly as the war needs for industrial labor become ever more acute. For this reason it is vital to establish sound standards for women's wages. It is important at this time for the Women's Bureau again to call attention to its policy, formulated in 1918 when war production problems arose that were similar to those of the present, and since then repeated many times. The Women's Bureau policy on this subject, now upheld by many official agencies, is that—

> ***Wage rates for women should be the same as for men, including the entrance rate.***

As women workers are called more fully into war production, there are several reasons why it is an essential part of the efficient conduct of the war to provide adequate wage standards for these workers, many of them new to industry.

1. To keep up the health and morale of the workers who supply the sinews of war is as important as to develop the physique of the soldier. The worker's wage is the basis of health and morale; it must be sufficient for support.
2. It is basically unfair to pay one worker a lower wage than another for substantially the same work.
3. Men leaving to go into the armed forces must be able to feel that the women who carry on in industry are not being forced to undercut established wage standards.
4. It is sometimes argued that men's wages are higher because they support families. But today a large percent of the employed women also support dependents. This will be increasingly the case during the war (even with the family allotment). Moreover, young men without families are not paid a lower wage because of having no dependents.
5. Every effort must be made now to prevent a disastrous slump after the war. Keeping up the industrial wage standards during the rapid entrance of new women workers is one important block that must be laid now toward building the post-war structure.

Men's and Women's Jobs

Today both men and women are working on jobs similar to those women always have done in peacetime; both men and women are working on jobs formerly done almost altogether by men; both men and women are working on jobs that, through the traditions of World War I and of arsenal employment then and today, might be considered women's; men are working on jobs in one plant that women are doing in a plant having similar production; men and women are working side by side on the same work in the same plant.[1]

> ***The great majority of occupations and the industrial processes of today are in no wise exclusively men's or women's.***

As far back as 1930, women were found in all but 30 of the 534 occupations classified in the census. More recently, newer types of work have appeared on the horizon, and women have been employed in many jobs not before done by them. A recent survey by the United States Employment Service found that women could perform 80 percent of more than 1,800 processes in key war industries.

Sometimes, but by no means in all cases, plant changes are made when women are put on processes they have not before performed in the plant. Such changes are no greater in extent than those that progressive industry constantly makes for a variety of reasons in order to keep abreast of invention or newly devised work methods. These improvements cannot properly be charged against the workers.

The employer makes the capital outlay on changes in process in order to facilitate production, to market a newly needed product, to effect some saving, and so forth. He introduces women for similar reasons, and thus makes use of an available labor supply in a time of need. Data on women's output (given a few pages farther on) show that in the end he gains thereby. Changes made for this purpose are a matter of engineering efficiency, and in no wise an expense to be borne by the women workers.

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[1] See, for example, jobs women are doing in aircraft, ammunition, and instrument plants, described in Women's Bureau bulletins 189–1 to 4, and 192–1 and 2. Formerly, men and women rarely were found doing exactly the same thing in just the same way, but this is much less true in the present. Women now are found in new jobs doing all parts of the process, as for example setting up their own machines and so forth.

Light Work

It is common to hear it stated that women in industry are doing "light work" or the "light repetitive" rather than the "heavier" jobs. The lightness of an operation does not indicate the degree of skill it requires, and does not form any adequate basis for wage determination.

> ***A "light" job often represents a high order of skill, exacts a large share of the worker's energy, and is of great importance to the product. Accordingly, the wage rates should be high enough to fit these characteristics of the job.***

Such work frequently requires a delicate and careful touch, manual dexterity, rapid machine operation, quickness of hand and brain. Examples of jobs that might be classed as "light work," though they require a high degree of skill, are the assembling of the fine parts of aircraft or ship instruments, or of a time fuze; the screwing together in proper arrangement of different small parts of ammunition for artillery pieces; the final inspection of small aircraft parts as fast as they are turned out; the assembly of an electrical system for an aircraft instrument board, or of the entire instrument board; the operation of a press stamping out small metal parts; or of a drill making fine holes at exactly the proper places in small metal parts. (Women are found changing and sharpening their own drills where it is customary for the drill operator to do this.)

Obviously these so-called "light" operations require a greater degree of skill than that of the moveman or the material handler who lifts heavy weights or heavy boxes or carries heavy lots of work.

A "light" machine requiring great speed of operation or the accomplishment of a quick monotonous process may be far more exacting, actually may use up far more of the performer's physical energy, than work requiring chiefly muscle or brawn and entailing but little dexterity or judgment. It may be far more important to the product than some of the heavier jobs, and may be worth a better wage. Repetitive jobs call for a large degree of concentration or continuous application, and if they involve following the machine, failure in concentration may mean physical disaster to the worker as well as ruin to the product.

The Saving of Skilled Labor

The process performed by the worker is not the less skilled in character because a helper or a machine does any heavy lifting involved, nor is it in fact less skilled than the operation of a heavier machine on which other requirements are no more exacting. On the heavier as well as on the lighter machine, whether operated by men or by women, the addition of lifts or of a helper for several operators often has been found to effect a saving.

> ***Heavy lifting or carrying now is more and more done by machine power, and the introduction of mechanical lifting and handling devices is not in itself a basis for lowering wage rates.***

Industry of today more and more eliminates the use of human beings to provide the heavy manual labor. Instead it employs human capacity in skillful manipulative processes, and jobs requiring a high degree of dexterity. One of the most important values of the machine age is that it can free human beings from exhausting physical burdens. Examples of practical methods used by engineers to reduce human lifting follow:

> In an aircraft plant, suspending an air-operated wrench from a counter-balanced support had eliminated the necessity for lifting and handling. A woman replacing a man in the use of the wrench was able to operate two such counter-balanced air-driven wrenches simultaneously instead of the one formerly operated by the male employee.
>
> In a machine-tool plant multiple spindles were attached to milling machines, making it possible for a girl to operate four machines with fewer steps from one to another.

The proper conservation of labor is a factor vital to the whole organization of production, to employer as well as worker, and to the Nation's very life. When the need for output is great, skilled work and skilled workers must be used to the best advantage.

It is no economy of labor to employ the brute strength of human beings for heavy jobs; they can be done by machinery and thus release human labor for processes of greater skill, delicacy, or dexterity, such as exist widely in industry today. Much of the effort to train new workers and to upgrade workers is based on the principle that it is no economy of labor to employ on an unskilled job a worker capable of developing greater skill. It is in line with this policy to use machinery wherever possible for the heavier lifting or carrying, and this especially can be done on new jobs and in new plants.

Furthermore, it sometimes has been found to be economy of management to provide a set-up man for a group of machines, whether operated by men or by women. But there are cases where this is done for men as well as women, and in an increasing number of instances the woman operator sets up her own machine just as the man does.

Women's Output on the Job Compares Well With Men's

One of the first questions the employer wants answered when he considers women's wage rates relates to their output and the efficiency of their work. There is a considerable body of evidence that the industrial efficiency and the output of women are as satisfactory as those of men, in some cases more so. Especially is this true where the individual is properly suited to the job and the conditions of work are adequate.

In particular, women are found more proficient than men on certain operations that require care in measurement, fine handling, or light skilled work. Women compare favorably with men, too, in learning time, in some cases learning more rapidly; considering women's inexperience in mechanical training, this is an especially good record.

> In packing and inspecting link belts used for feeding ammunition into machine guns, women's output in a Government arsenal was reported to be 40 percent greater than men's.
>
> More mechanical time fuzes are being produced per employee than ever before in a Government arsenal where 96 percent of the employees at work on them are women, though a few years ago only 2 percent were women. Some part but by no means all of this can be referred to changes in the process, but the foreman felt strongly that women's production on these tiny parts was far superior to men's.
>
> Other processes in Government arsenals in which women in some instances have been found to produce more than men are in the operation of internal grinding machines formerly operated only by the most skilled men, and on several types of machining operations in the manufacture of rifles.
>
> Women learned faster and did more careful work than men in inspecting operations in the manufacture of cutters for gear shapers,

which involved careful measurements by the use of optical comparators, laboratory microscopes, circular pitch machines, cone machines, and other special measuring devices.

A woman operating a sensitive drill in an aircraft plant had maintained a record of double the output of the man formerly on the job.

In machine-tool plants, women who had been employed only a short time were reported doing well in production on milling machines, drill presses, gear hobbers, grinding machines, and inspection. In one case a woman's work exceeded that of most other workers, including men, in grinding broaches for barrel-rifling machines, setting up her own work, and grinding to almost inconceivably fine tolerances.

A girl spot welder in an airplane plant had more than doubled the previous records of boys on the same job.

Women doing acetylene gas welding on stainless steel manifolds for aircraft engines had passed Army-Navy weld tests two to one better than men on this operation, which is light but very skilled work—in fact it is one of the most difficult types of welding.

Recent surveys of California firms employing significant numbers of women in different industries found that in all cases there was an increase in production per hour, and a lowering of cost per unit, particularly where women were employed at the same wage and on the same jobs as men.

The management of major metal plants on war production of parts recently stated to a Women's Bureau agent that women meet the schedule well, in some instances better than men, and often produce more than men. This is verified by occasional time-study checks.

In aircraft manufacture a drilling operation required that a very small hole be drilled in small metal pieces. A man on the job drilled 650 holes a day; when a girl was put on she kept up a record of 1,000 holes a day.

In aircraft plants: On jobs in the woodwork shop, girls were working as fast or faster than men; in the tubing department output increased more than the proportion of women added; a 2-year plant record of men had been broken a few weeks after women were put on such work as inspection, machine-shop operations, precision assembly, sheet-metal work, tail and wing assembly, shearing, trim-shop work, and other occupations.

Certain of the studies made during World War I give outstanding evidence that women's output takes its place satisfactorily with that of men. For example, of 267 metal-working firms reporting on the substitution of more than 13,000 women for men in 14 occupations, the proportions stating that women's output was equal to or greater than men's ranged from 56.8 percent of the firms reporting on grinding and polishing to 84.6 percent of those reporting on welding.

In another of the World War I studies reporting many women in Cleveland, Ohio, employed in plants and on processes to which they were not accustomed, the output of women and girls was found to be greater than that of men and boys by 64 percent of the production managers reporting for the metal industries and 20 percent of those reporting for the clothing industries. In a study of women employed in the metal trades, made at about the same time by the National Industrial Conference Board, two-thirds of the employers reporting on production stated that women's output was equal to or greater than that of men.

In a study of the replacement of men by women in New York State industries during World War I, made by the Department of Labor of that State, it was found that even in cases where the women produced more than the men they received lower wages than the men doing the same work in the same plant.

Output Depends Partly on Short Hours.

One of the primary requirements for maintaining output is hours so short that the worker does not become overfatigued and thereby unable to keep up production. The fine processes and the dexterous hand work often done by women appear to be just the types of occupation that lend themselves best to the maintenance of an even production schedule throughout the day, *provided* daily and weekly hours are sufficiently short and rest periods are arranged suitably to fit the needs of the job.

There is well-established evidence, based on scientific experiments and long factory experience, and illustrated by a multitude of instances, showing that production falls if daily or weekly hours are too long. The experience of the present war repeats and augments this evidence. A recent report of the British Industrial Health Research Board states that the long hours of June and July 1940, plus the extra effort made by the workers, usually were detrimental to sustained productive effort.

Women on capstan lathes in World War I increased their output 13 percent where work hours were shortened about 13 percent.

Study of the iron and steel industry in the United States made by the Bureau of Labor Statistics considered the 10- and 12-hour day in 1922, when production of a ton of pig iron required 3,270 man-hours. Daily hours were reduced to 8 in 1923, and in 1924 the ton of pig iron was produced in 2,662 man-hours. Thus the shortened hours caused a reduction of nearly one-fifth in man-hours required for the job. In this interval no mechanical improvement of any importance was introduced.

In comparing an 8-hour and a 10-hour metal-working plant, the United States Public Health Service found the shorter hours enabled production to be better maintained throughout the day; output could be kept up through the day best on dexterous hand work.

Records of a major electrical company over a 5-year period show that output increased, especially on repetitive monotonous work, where proper rest pauses were introduced. The increase was greater if food also could be had.

An investigation by a committee of the Federated American Engineering Societies of continuous-process industries that had changed from a 12-hour to an 8-hour day reported no technical difficulties, and a production increase of 25 percent or more in some plants in practically every major continuous-process industry, accompanied by marked decrease in absenteeism and labor turn-over.

The United States Government Printing Office, after changing to a 5-day week (40 hours) in 1932, reported that the production per worker had increased by from 4 to 10 percent.

The Employer's Adjustment to a Woman Labor Force

Employers sometimes object to the "equal pay" principle because of adjustments found to be necessary when they take on women. It is claimed that these may involve changes in plant or in order of work, added supervision, or consideration of labor laws applying to women's work.

Changes in Plant or Order of Work.

It is often true that the changes referred to are only minor and inexpensive, and in such cases they cannot be used as a reason for lower pay to women.

The division of jobs into their elements is a process that has been going on a long time. It may be hastened by this or that economic change (in the present case by the pressure for war production) but it continues regardless of the worker's sex.

Where changes in machines or in routing of work require a considerable outlay, in more cases than not these changes are no more extensive than a progressive and far-sighted manufacturer would make in order to improve the efficiency of the plant under new conditions, especially where large numbers of workers, whether men or women, are being added.[2] In the end this process will represent economy through more effective plant organization. These improvements should not be at the expense of the woman worker.

Where added locker or toilet rooms or enlarged eating facilities must be provided, these are necessary in any case because of the expansion in the labor force. In the end they advance the health and efficiency of the workers and so contribute to the efficiency of the plant.

Supervision.

The additional supervision that it may be necessary to provide where women workers are newly employed is no more than would be required by any large group of new workers. It may be considered, therefore, one of the necessities required by the increased production due to the war, and not specifically because women are being hired. Field agents of the Women's Bureau report that supervisors having no experience with women workers sometimes fear difficulties that in fact never arise, and often they become most enthusiastic about their woman labor force.

A primary requirement for supervision of women is that it always should be done by persons who have no vestige of prejudice against women workers. Faulty supervision in any case retards production. The selection of supervisors should be primarily for their capacity to deal with people as well as their knowledge of the processes. It has been found that early difficulties in the supervision of a new labor force tend to disappear entirely in a few weeks as the jobs and the work program are more clearly defined and the workers become better adjusted.

Managements can save themselves much trouble in the end by consulting at the very outset those who have experience with the problems they themselves are newly facing. From the beginning the best known policies should be followed. A large aircraft firm claimed to have disciplinary trouble with women. Analysis showed that their placement policies and their work organization had not been sufficiently well planned in advance. Meanwhile, other such firms were employing women with marked success.

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[2] See also p. 22.

Adjustment to Labor Laws.

On the whole, the work standards required by law are such as experience has proved will best aid maximum output as well as workers' health. A statement made early in 1942 by the Navy, War, and Labor Departments called sound standards "mechanisms of efficiency."

In this connection labor laws are a distinct aid to the employer; they protect him against unknowingly employing his labor force in such a way as to decrease its value to him. Many an employer in the great industrial States has at first thought it a great hardship to comply with some labor law, but after he has so organized his work as to observe the law he has found added efficiency and has thanked the enforcing authorities.

Where the employer could not adjust his work so as to comply with labor law without interfering with urgent production needs in an emergency, he has been able in almost all cases to obtain modification suited to his immediate requirements but so controlled that it will not in the long run handicap his workers' health and efficiency.

Work Characteristics Attributed to the Woman Worker

One set of objections to the "equal pay" principle has to do with certain characteristics that have been attributed to the woman as a worker. Some employers claim that women are less desirable employees than men because of less physical strength, greater absenteeism, a shorter working life and higher labor turn-over, a proneness to accident. Excepting only the first mentioned, these largely have to do with regularity on the job.

Available data on some of these subjects are not sufficient to make possible a complete answer of "yes" or "no" to all such objections. However, it must at the outset be noted that in their employment women have been subject to all the disadvantages of a group of workers relatively new and used largely as a fill-in or marginal labor supply.

Women as a group too often have entered the world of industry with a handicap in no wise due to lack of capacity on their part. To a large extent this can be overcome by better industrial planning, and greater regularity of work can be secured by providing more satisfactory working conditions.

Women for the most part have not had opportunity to become so well established in industry as men. For example, in the past their training often has not been specifically devoted to their new tasks and they have not even been admitted to training in certain of the more skilled and better-paid trades; their employment has been to a large extent in irregular and low-paid industries, and thus their economic status often has been such as to undermine their health.

Physical Strength.

An increasing proportion of the jobs in industry today require dexterous hand work and skilled, intelligent manipulation, rather than heavy muscular force. They can be done well by the less powerful workers. They are the types of job for which women are chiefly employed, and there is no reason for reducing the wage rate for this skilled work merely because a woman is found to have only a little over half the physical strength of a man.[3] The answer to the production problem in such cases is the provision of proper conditions of work such as suitable height or adjustment of machines, adequate seating, regulation of speed so that it is not excessive for the worker's physique, satisfactory arrangement of rest pauses, and other mechanisms of good management designed to prevent excessive fatigue and maintain output.

Absenteeism.

There seems little doubt that women are absent from work because of illness somewhat more often than men. *However, the reasons for this lie to a considerable extent in industrial conditions*

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[3] Women also have been found doing severe muscular work in a good many cases. See Women's Bureau Special Bul. 2, pp. 2–3.

that can be improved. For example, in a major aircraft plant where conditions of work are good it is found that even under the wartime pressures absences are no more for women than men—less than 3 percent. Similarly, in a company that employs hundreds of women producing precision aircraft instruments average absenteeism recently was found to be less than 1 percent.

In somewhat the same way as an improved machine or a readjusted method of handling a work process may require considerable adaptation in spacing, arrangement of tools and materials, or other plant conditions, it is clear that certain conditions of work must be considerably better adapted to the needs of women workers if the large supply of woman labor necessary for war production is to be secured.

A survey in 1935–36 by the National Institute of Health showed that 27.7 in every 1,000 women workers 15 to 64 years old visited, compared to 22 per 1,000 men, were ill on the day of the canvass.

In 1940, the Public Health Service reports, 101 out of every 1,000 women industrial workers, but only 65 out of every 1,000 men, had an illness of 15 days or longer.

A Public Health Service report on a large public-utility company shows absences of one day or longer due to sickness and accidents averaging per year 900 for every 1,000 men and 1,820 for every 1,000 women. (This also may indicate a higher turn-over of women.)

So far as industrial injuries are concerned, these are more severe for men than for women; but the total of time lost in the year because of illness is greater per 1,000 women than per 1,000 men.

The Public Health Service report referred to above shows that in a year's time the woman worker loses an average of 10.9 days, the man an average of 7.5 days, because of illness or injury.

Records from the same public-utility company for an earlier period showed the average annual days of disability per person on the pay roll were 6.5 for men and 13.1 for women.

There is little difference between men and women workers in the number of nonindustrial injuries suffered in the year.

For the years 1935–39, the Public Health Service reports 11 cases of nonindustrial injuries in every 1,000 women industrial workers, and 13 cases in every 1,000 men.

There is a large body of experience to show how absenteeism is greatly reduced by measures that prevent excessive fatigue, such as shortened hours, rest pauses on exacting work, guarding against too great a speed-up, and so forth. Fatigue not only predisposes the worker to illness but causes greater proneness to accident, and in both these ways absenteeism is increased.

The following examples indicate that absenteeism can be reduced markedly by a shortening of work hours and by planned rest pauses. Plant facilities for a hot nutritious meal also help to alleviate fatigue and maintain health, and thus to reduce absenteeism.

> In a Women's Bureau study of lost time in cotton mills, the proportion of time lost by women was twice as great in 55-hour mills as in those with a 48-hour schedule.
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> Reduction of hours to 8 a day markedly reduced absenteeism in plants surveyed by the Federated American Engineering Societies after World War I.
>
> An Indiana plant that kept careful records of absenteeism showed that girls who worked long overtime were so fatigued that more hours were lost through absenteeism than were added by overtime.
>
> Records reported for a cotton plant show a reduction in sickness after the introducing of rest periods in forenoon and afternoon.
>
> British experience found twice as much time lost by men and women who worked long hours as by those with shorter hours. In three shell factories, after the week was shortened to 44 hours lost time from sickness was reduced. After the change men lost no time, women 3 percent of their time, though formerly both had lost about 6 percent or more.
>
> Proneness to accident was found in a British munitions plant to be two and one-half times as frequent in a 12-hour day as in a 10-hour day. No doubt further reduction of hours would reduce accidents still more than this.

British experience in the present war has been marked by the serious problem of absenteeism, in some industries as high as 20 or 25 percent. Contributing to this condition were the excessive work hours (since shortened), the influenza epidemic reaching its peak in the winter of 1940, and the disruption of transportation and other living facilities by air raids.

In British factories where both men and women were employed, women lost on the average about twice as much time as men. However, a major munitions firm reported that certified illness had increased for men but not for women. (Younger men were called to the armed forces, and the men remaining were older or "of low medical grade.") Where the 5-day week formerly had been the custom, Saturday absences constituted nearly half of all in the week (for both men and women).

An important cause of absenteeism among women, besides illness, is in their household duties. This is a factor that will have to be met by adjustments in industry, as long as women workers are expected also to give service to their families or to perform personal services for themselves that are not expected of working men.

In England, where need for woman labor is acute, measures taken by industry to meet this situation include arrangement of shifts so that women will have time to buy and prepare food for their families, arranging that women's leave time can be granted when their men are on leave from the armies, and the organization of some industries so as to use considerable part-time work.

> A major British munitions firm has reported that absence due to illness among part-time women employees is only 1.8 percent, though it runs to 3.3 among married women who are on full-time work.

Labor Turn-over.

Women have, in the past, been thought of as presenting a greater problem of labor turn-over than men. However, in a war economy, employment of women is the solution of a serious labor-turn-over problem caused by withdrawal of men for the armed forces. There are many other instances, too, showing women comparing favorably with men in sticking to the job; in fact, some firms prefer women because of their greater attachment to home and family ties and their consequent greater likelihood of remaining in the locality at work. As in the case of absenteeism, industry can be so organized as to reduce turn-over considerably.

More and more do women expect to remain in employment throughout a normal working life. As their numbers in employment have shown a marked increase in every census period, so they are remaining longer in the working world. Women's Bureau evidence shows that many women remain for long years in their trades, imparting a large degree of permanency to their job-holding.

> Though larger proportions of working women than of working men are in the younger groups, yet the Census of 1940 showed over 40 percent of the women in the labor force to be 35 years of age or older.
>
> An earlier survey of the Women's Bureau, including over 35,000 of the better-paid women in manufacturing in 11 States, showed that almost 18 percent of these had been in industry for 10 years or more.
>
> A study of 45 plants in various industries during World War I showed turn-over rates considerably lower for women than for men. However, the wartime conditions influenced this—the leaving of men for the armed forces, the influx of women into industry (1917–18).

Women Support Families Too!

An excuse sometimes given for not paying women the rate for the job is that men have to support dependents. But today this often is just as true of women. Their responsibility in this respect will be increased as more and more men go into the armed forces.

For example, in 10 studies on this subject nearly 13 percent of the more than 369,000 women reported were the *sole support* of families of two or more persons. In 34 studies reporting more than 155,000 women, and including both the married and the single, practically 60 percent contributed to the support of dependents.

As far back as 1930, census data for representative industrial cities showed that more than a tenth of the employed women were entirely responsible for the support of their families. More recently, a Women's Bureau investigation in two widely diverse localities showed that women's earnings constituted the entire support of well over a third of the families of two or more persons.

One never hears the argument advanced that a young unmarried man should be paid a reduced wage because of his status, though usually he assumes less financial responsibility for the home than does his sister. In fact, the principle of the "family wage" has never existed in this country as a basis for wage payment. Here the wage is paid for the job done and not according to number of dependents.

Government Policy Has Long Upheld the Rate for the Job

The principle of the rate for the job, regardless of the worker's sex, has been advocated officially or ordered put into effect by nearly a score of the agencies of the Federal Government over more than 40 years.

The Woman in Industry Service in the United States Department of Labor, organized in 1918, and later the Women's Bureau of the same agency, created in 1920, has upheld the principle as follows:

> ***Wages should be established on the basis of occupation and not on the basis of sex.***

The National War Labor Board has held to the "equal pay" principle. In the case of the Remington Rand typewriter company, the Board held the low rates paid women to be so unequal as to require a raise, though no other rates were ordered advanced. The Board established the principle of "equal pay" as a definite policy in two important opinions rendered in September 1942—one in the General Motors cases and the other in the Brown and Sharpe case.[4] Both in these and in another case in the preceding month, the Board directed that an "equal pay" clause be included in the union agreement. It should be noted especially that in these cases the Board has gone further than merely to uphold the equal-pay principle in cases where women are replacing men. It holds that comparable work should be paid the same rate *regardless of replacement*. The Board warned that slight or inconsequential changes in the job do not constitute sufficient reason for a wage differential against women; and that the physical demands of the job are not the sole standard for fixing the wage.

Quite recently, the War Production Board, the Army, the Navy, and the Department of Labor advocated that: "Wage rates for women should be the same as for men, including the entrance rate." At the same time they stated that, "Sound

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[4] See p. 24 for the text as to the Board's decision on this subject.

labor standards, which over any protracted period are essential to the maintenance of production, * * * are the mechanisms of efficiency."

The Michigan legal requirement that where women do the same work as men they shall receive the same pay rate recently has been upheld in the courts. In this case, back wages were ordered restored to women who were paid only 76 cents an hour while men on similar work received 97 cents.[5]

The Fair Labor Standards Act of 1938 specifies certain basic minimum rates with no distinction by sex; in one section of the Act machinery is created to fix higher minimum rates than the basic minimum, and here is stated—"no classification shall be made under this section on the basis of age or sex."

Under the National Recovery Administration and its forerunner, the President's Reemployment Agreement, the payment of a lower wage to women than to men was held to be a practice leading to unfair competition in industry. The N. R. A. announced the policy that "Female employees performing substantially the same work as male employees shall receive the same rate of pay as male employees."

In 1915, the Commission on Industrial Relations, created by Congress to inquire "into the effect of industrial conditions on public welfare," recommended that both public opinion and legislation recognize "the principle that women should receive the same compensation as men for the same service." The much earlier Industrial Commission, created in 1898, expressed itself strongly on the principle of "equal pay for equal work."

During World War I, with the necessary rapid entry of women into war industries, the Chief of the Bureau of Ordnance of the War Department issued (November 1917), to arsenal commanders and all manufacturers filling war contracts, General Orders 13, providing among other things that:

> ***The standards of wages hitherto prevailing for men in the process should not be lowered when women render equivalent service.***

This principle was taken as a guide by the Women in Industry Department of the Woman's Committee of the U. S.

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[5] General Motors Corporation v. Read et al. (1940), 294 Mich. 558; 293 N. W. 751.

Council of National Defense. There also was a Women in Industry Committee of the Advisory Commission of the Council of National Defense, which advocated the same policy, as follows:

> Whenever women are employed for work customarily done by men, they shall be paid the same rates as are paid the men. If processes are not identical, an adjustment of wages should be made according to the skill and output of the workers. But in no case shall the wage scale for any department or process be reduced for no other reason than that women are replacing men.

In its report of March 1918, the War Labor Conference Board (appointed by the Secretary of Labor on recommendation of an advisory council) recommended the creation of a National War Labor Board to handle industrial disputes, and formulated the principles to be applied, which included the following:

> ***If it shall become necessary to employ women on work ordinarily performed by men, they must be allowed equal pay for equal work and must not be allotted tasks disproportionate to their strength.***

The National War Labor Board *applied this principle in more than 50 of the cases* that came before it. The largest numbers of these had to do with work on street railways and in steel, machinery, or metal plants, but the cases also included other industries—chemical, electrical, paper, food, laundry.

This principle also was adopted by the War Labor Policies Board, of 1918, an administrative body within the Department of Labor created to correlate its work with other departments in the Government. In December 1918, the United States Railroad Administration made the following rule, restating it in slightly different terms in the General Order of May: "The pay for female employees, for the same class of work, shall be the same as that of men, and their working conditions must be healthful and fitted to their needs. The laws enacted for the government of their employment must be observed." In November 1919, the U. S. Civil Service Commission definitely ruled that all examinations were open to men and women alike.

"Equal Pay" in Union Agreements

In union negotiations, clauses now frequently include agreements to the principle of equal pay for women's work.[6] In fact, at the National Industrial Conference called by the President after World War I, Mr. Samuel Gompers, chairman of the labor group, stated this principle as one of the "fundamental propositions" having "unanimous approval of the labor group, including the representatives of the railroad brotherhoods." In the past, however, unions often have failed to realize how important this is in maintaining wage standards at a time when women must supply an increasing part of industrial labor. Though many instances of local contracts could be given, the following may be taken as typical.

The principle is stated in agreements both with A. F. L. and C. I. O. unions in major aircraft plants, sometimes both unions having agreements in the same plant, and both stating this principle. For example, contracts of the International Association of Machinists with two different aircraft companies state:

> Company 1. Wage rates shall be the same for men and women doing comparable work.
>
> Company 2. All terms referring to male employees in this agreement shall also be applicable to female employees. [No differential rates are set.]

Two of the contracts of the International Union of United Automobile, Aircraft and Agricultural Implement Workers of America with aircraft companies state:

> Company 1. Female employees who may be required to perform the same work as male employees will receive equal pay.
>
> Company 2. There shall be no discrimination in rates of pay for female employees replacing male employees.

On a Nation-wide scale, the United Electrical, Radio and Machine Workers of America are including such a clause in their agreements. Such contracts have now been made with the major electrical manufacturers and with important automobile companies. In one of these applying to all the plants of one of the largest electrical companies, men's jobs are defined as those performed by men prior to December 7, 1941, and the contract states:

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[6] In some cases where entrance rates for women formerly have been very far below those for men, though the contract announces the "equal pay" principle, fully equal rates cannot always be reached immediately without an interim period merely narrowing the differential. This situation need not occur where women are going into jobs new to them or new in the plant.

> Women assigned to such jobs during the war emergency shall receive keysheet rates of pay equal to those received by men under similar circumstances.

Another contract of this electrical workers' union provides:

> The company agrees to abide by the principle of equal pay for equal work for female employees employed on the same operations as men.

The Amalgamated Association of Street, Electric Railway, and Motor Coach Employees has established and long maintained this principle. Recently it was upheld in a strike to keep up the wage rates for women cleaners for a major country-wide transportation company.

An agreement of the United Steelworkers of America with large subsidiaries of United States Steel contained the following:

> Women employed to perform work on jobs heretofore performed by men shall receive the same pay for fully performing the same quantity and type of work.

The United Rubber Workers of America include such a clause in their contracts, for example, with plants in Pennsylvania, Ohio, and California. One such contract reads:

> The company further agrees to pay equal pay for equal work and all development work having no temporary or permanent rate established shall be compensated at a rate not less than employee's past average earning for last pay period exclusive of overtime.

Another agreement for rubber workers says:

> All employees shall receive equal pay for equal work, regardless of sex, color, age, or nationality, and shall not be penalized on account of machine or equipment inequalities. It is understood that in any case where female labor replaces male labor, the piece-work rate in effect on that job before the change was made shall be effective.

Some unions that formerly have not included women in their membership have now admitted them, since many more women have come into the industry. An example is the International Association of Machinists, whose locals opened their doors to women in 1941. Many of these women were bench workers and operators of foot or power presses.

Women's Pay Rates in War Industries

Expanding aircraft manufacture is the wonderfully publicized industry of today. Most plants are new; almost uniformly excellent work conditions are planned and built into the plants and the organization. Women have been employed in large numbers for less than a year. As in World War I, the principle of equal pay for women's work appears to be especially well recognized where employment of women is relatively new.

In visits to all major aircraft plants in the country, agents of the Women's Bureau found the same pay scale for women as for men usually prevailing for workers on first entrance to aircraft plants. However, there are some exceptions; for example, in one aircraft plant where rate differentials existed all along the line a woman instructor was found receiving a pay rate far below that of the men she was training. Most aircraft assembly plants have a regular wage advancement policy for the first months of employment, after which workers are assigned according to the rate for the job. Women's work history in aircraft is short—their employment in large numbers had scarcely begun before December of 1941. Hence it is too early to be sure as to the rate of their progress into the more highly paid jobs in the industry.

In most ammunition plants, in contrast to the situation in aircraft, it was found that women have not been started at the same rates of pay as men. However, a number of plants have worked out detailed job classifications and pay the rate for the job, and a few have a system of automatic pay advancement. There are many cases in Government arsenals where women's rates are far below the standards for men in the same type of work.

In certain machine-tool plants visited by the Women's Bureau entrance rates of women were found to be well below those of men.

In shipbuilding, women were only beginning to be employed on production work in the late summer of 1942. In two major shipbuilding and drydock companies visited by the Women's Bureau, these new workers were paid the same beginning rates as men on the same processes.

The Rate for the Job

A correct or suitable rate for a job can be established only by an analysis of the specific requirements of the job.[7] However, there is not always time or facility to undertake a really good job evaluation, and one that is not excellent is worse than none. In the meantime, even without further effort at defining the job, or the work, much can be done if there is a sincere effort on the part of management and workers to carry out the principle of equal pay for women's work or "the rate for the job." The Women's Bureau recommends the following as a workable basis of pay until a plant can complete a job analysis.

1. *If the job or operation is a new one, the rate should be fixed according to the job, and regardless of whether a man or a woman is to perform it.*
2. *If a woman is placed on a job formerly done by a man, or on a type of job customarily done by a man, she should receive the identical rate paid the man.*

   Managements sometimes make slight changes for the purpose of improving the process, and such changes cannot be taken as a valid reason for paying a lower wage rate to women.[8] *Among the examples of this would be the raising or lowering of benches or machines to improve the work lay-out and reduce the lifting weight; the arrangement of work so that the heavy lifting is performed by movemen or material handlers {laborers}; the placing of an automatic stop on a machine; the installing of conveyors to slide parts from one machine to another; the introduction of a lighter arbor or other machine part, or the changing of a jig or fixture so as to lighten the lifting weight; and so forth.*

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[7] Without such an analysis no words can define the job in a manner finally satisfactory for the fixing of rates. Words that have at some time been used in an effort to define the job have included identical, the same, similar, equal, equivalent, corresponding, essentially identical, comparable, kindred, essentially similar, substantially or appreciably the same, similar in all material respects, and so forth.

[8] See also p. 9.

Newer Needs of Industry and Workers

Old ideas that still exist as to women's work are not fitted to the needs and possibilities of industry today. They are outmoded and are being discarded more or less rapidly.

Advanced management concentrates its will and exerts its energy to fit industrial practice to the conditions of work best suited to the needs of the workers, recognizing this as a basic factor in securing the fullest output.

The experiences being gained in war-production efforts have shown that in the future there must be closer fitting of job requirements to workers' needs, a fuller attunement of the entire organization of industry to the requirements of human beings.

Extracts from Decision of National War Labor Board in the General Motors Cases, September 1942

FROM DIRECTIVE ORDER

Wage rates for women shall be set in accordance with the principle of equal pay for comparable quantity and quality of work on comparable operations.

Any dispute arising as to the question of quality, quantity, or comparability, as herein defined, shall be subject to final determination by an arbitrator appointed by the National War Labor Board; provided, however, that any such dispute which involves an alleged violation of a local wage agreement shall be settled within the procedural framework of the grievance provision in the agreement.

The parties shall include in the new agreement the above provisions and in their application shall be guided by the Opinion of the Board in this case.

FROM OPINION OF THE BOARD

Wage Rates for Female Employees.

The National War Labor Board has accepted the general principle that wages should be paid to female employees on the principle of equal pay for equal work. It believes that there should be no discrimination between employees whose production is substantially the same on comparable jobs. This is not a new principle. It was enunciated by the War Labor Board set up in 1917 to deal with industrial problems arising during the first World War. Our country will depend in this war more and more upon its women to produce the materials with which its men will fight. In calling upon American women to play such a vital role on the industrial front, the country has an obligation to provide the utmost assurance that they will not be subject to discriminatory treatment in their compensation. Careful attention must be given to the equitable effectuation of this principle.

The Board has directed the parties to include in their new agreement a provision that wage rates for women shall be the same as for men where they do work of comparable quantity and quality in comparable occupations. The wording of this paragraph in the Directive Order indicates the impropriety of using slight or inconsequential changes in a job as a reason for setting up a wage differential against women employees. Wage-setting on such a basis is not compatible with the principle of equal pay for equal work. The Board wishes to stress, however, that the definition embodied in its Directive Order on this issue is not related solely to the physical characteristics of the operation performed. The quality and quantity of production must also be considered. Female employees assigned to an operation which has been or which is performed by men should receive the same pay when they produce the same quality and quantity of output. Any differential which results in lower pay to women under such conditions would be discriminatory. On the other hand, where lower production or performance standards must be established for women, an adjustment of wage rates is compatible with equal pay for equal work.

The Board has already, in the case involving Norma-Hoffman Bearings Corporation and the United Electrical, Radio and Machine Workers of America, CIO, and more recently in the case of the Brown and Sharpe Manufacturing Company and the International Association of Machinists, AFL, taken cognizance of the fact that it is often impossible or inadvisable for female employees to undertake heavy physical labor which has been established as a part of certain jobs when performed by men. In such cases, the employment of women workers may entail extra supervision, extra set-up men, or extra carry-off men. As pointed out in the Brown and Sharpe opinion, extra labor costs can be computed in these circumstances and can be given pro rata weight in establishing an equitable rate of pay for the female workers. Such an adjustment of rates is in line with the equal pay for equal work principle where it is necessary to prevent an increase in unit labor costs. On the other hand, such a division of work and specialization of tasks may frequently be made without increasing labor costs even though the female employees continue to receive the established rate for the operation. In such cases, there is no sound basis for setting a differential rate against the female employee. Such division of tasks has often been used on jobs manned by male employees as a means of reducing unit costs while maintaining hourly rates. There are sound reasons therefore for guarding against the use of the procedure to cut women's rates under such circumstances.

The previous discussion indicates some of the factors which must be taken into account in equitably effectuating the principle of "equal pay for equal work." This matter cannot be entirely disposed of by any clause, no matter how carefully it may be worded. The principle of equal pay for equal work must be worked out in individual situations by parties who cooperate in good faith to secure the desired objective. Even under such circumstances, there may be honest differences of opinion. It is in recognition of this fact that the Board has provided in this case that certain disputes regarding the rates established for women employees shall be treated as grievances and handled through the established grievance procedure. In the case involving the U. A. W. such cases are ultimately subject to umpire determination insofar as they may represent a question of compliance with a local wage agreement. The Board has further provided in the U. A. W. case that any dispute as respects rates for female employees which does not properly fall within the jurisdiction of the umpire, as provided in the agreement between the parties, shall be finally determined by an arbitrator appointed by the Board.

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(Article taken from "General Federation Clubwoman" October 1944)

your copy

The General Federation began the study of the Equal Rights Amendment in 1934 and has continued the study ever since. In 1943 the Board of Directors endorsed the Amendment and authorized a poll of the clubs. The poll continued until April 1944, when the count disclosed that the clubs voting had endorsed the Amendment 6 to 1.

Twenty-five or more national women's organizations have endorsed the Amendment, which provides that: "Equality of rights under the law shall not be denied or abridged by the United States or by any State on account of sex."

Both political parties in 1944 endorsed a plank for submission of the Amendment to the States, also equal pay for equal work, regardless of sex. Mrs. Hiram C. Houghton, Jr., spoke at the Republican Convention and Mrs. William Dick Sporborg at the Democratic Convention. Their splendid presentation of the arguments for the passage of the amendment helped greatly in securing these planks.

The Equal Rights Amendment was first introduced in Congress on Dec. 10, 1923. It has been before every successive Congress since then. Eight Hearings have been held. It has been on the Calendar of the Senate three times and twice it has received favorable reports from the House Sub-Judiciary Committee. It is scheduled to come up for a vote in the Senate at an early date.

Tentative draft sent to Mary Anderson 8/25/44 regarding letter in N.Y. Times 8/22/44

To the editor of The New York Times:

Miss Harriet Anderson, Secretary of the Connecticut Committee for the Equal Rights Amendment, writes in her recent letter to the editor of the New York Times that Miss Frieda Miller poses no argument against the Equal Rights Amendment when she says that "No Amendment can give women consideration at the hands of the employers who hold the jobs in this country. Nor will anyone hire, say, a woman lawyer because of the Equal Rights Amendment."

We take issue with this appraisal of Miss Miller's remarks. When Miss Miller implied that the real discriminations against women result mostly from custom and prejudice, she was dealing a blow at the inherent weakness of the Equal Rights Amendment---its unrealistic thinking.

Proponents of the Amendment have said much about increased opportunities to be expected by women under the proposed alteration. But, have they considered the really important discriminations that are based upon custom and tradition and not upon laws?

No Amendment can force an employer to hire a woman for a job if he wants a man. Neither will an Amendment bring to a woman lawyer a single client who is convinced that only a male attorney is competent. Inequalities based upon longtime prejudice can be wiped out only by educating employers to the real capabilities of women. Certainly during the critical war years American women have proved their ability!

Everyone wants equality of opportunity. But, would the Equal Rights Amendment furnish any such equality? Opponents believe that it would not, And, further, they fear that it would strike from the statute books every single law that has been passed to ameliorate the working conditions of women. Today, with 18,590,000 women at work in hundreds of occupations, those organizations sincerely interested in the wellbeing of the woman worker are not willing to jeopardize the definite gains for the theoretical equality which is the purpose of the Amendment.

That the employed woman would lose under the proposed amendment is undebatable. What of the mother and the housewife? Yes, the Equal Rights Amendment would wipe out all laws for them unless and until such time as similar laws covered men. It is true that a few laws affecting relationships within the family (divorce, alimony, and the natural guardianship of children) differ in their application to men and women. Some of these laws may be bad and should be repealed or revised, but there are others which the people of the country would not be willing to give up because they represent the tested social judgment of the community on what is best for it.

Those who oppose the Amendment point out that much progress has been made, even during the war years, in the elimination of discriminatory laws against women. A review of the legislative changes from 1938 to 1943 affecting civil law distinction indicates that 46 out of 48 changes have been favorable to women!

Legal discriminations in State laws can be changed as fast as enough women want them changed. The machinery already exists. Why discard the definite advances made over a period of years for the mirage offered by the Equal Rights Amendment?

Excerpt taken from the Herald Tribune, New York, N. Y. July 30, 1944.

Women's Party Finds 1,000 Laws That Deny Women Equal Rights

The New York City committee of the National Woman's Party, pointing out that men and women have equal rights in no state of the Union, disclosed yesterday that there are more than 1,000 laws on state statute books which discriminate against women because of their sex.

Having won its fight for the inclusion of a plank favoring the Equal Rights Amendment in both the Democratic and Republican platforms, the National Woman's Party will re-intensify its drive for the amendment when Congress convenes next month.

Among the discriminatory statutes to which the New YorkCity committee referred is the one, in effect in twenty-two states, which bars women from jury duty. In some states, including California, Massachusetts and Nevada, a woman cannot engage in business unless her ability to do so is established by the courts.

Before "Ma" Ferguson, elected governor of Texas, could take up her official duties, she had to petition the courts to set aside her "disabilities as a married woman" in order that her actions for the state might be legal. In Texas a husband can get a divorce on the basis of one act of adultery, while a wife, suing on this ground, must also prove that her husband has abandoned her.

In New York, a wife's income from sewing, boarders or any other enterprise in the home belongs to her husband, unless he agrees, in writing, to relinquish this "right."

Continuing its list of inequalities, the committee pointed to the South Carolina law which states that a wife's clothes are the property of her husband. In Ohio, women are not allowed by law to engage in certain professions, such as driving taxicabs.

In the State of Washington, a woman cannot sue for damages for personal injuries unless her husband joins in the suit. And in Wisconsin no woman may be employed by the State Legislature.

A Kentucky woman may not divorce her husband for drunkenness unless he can also be charged with property waste and non-support. But a husband may divorce his wife for drunkenness alone, except when he is in like fault.

In many states, the committee concluded, there are no laws by which an unmarried woman may demand aid from the father for the support of their children.

Times, Shreveport, La. , July 28, 1944

EQUAL RIGHTS AND THE WOMAN VOTE

The 1944 Democratic convention caused surprise by following the lead of the Republican convention and coming out for an equal rights amendment to the Constitution. This action was taken in spite -- or perhaps because ---of the opposition of Secretary of Labor Perkins. Mrs. Roosevelt also has long opposed an equal rights amendment. In 1940 the Republicans accepted, the Democrats rejected, a plank for an equal rights amendment.

The advocates of an equal rights amendment are led by the National Woman's Party. This group insists that especial protective laws for women make it harder for many women to get jobs. It calls such laws unnecessary in this day and generation, and maintains that by discriminating against women they deprive them of their full rights as citizens.

The opposition is led by the Women's Trade Union League, supported by the A.F. of L., the C.I.O., and many social welfare organizations. This camp argues that legal restrictions on hours, pay, and other conditions of employment are still needed to safeguard the health and prevent the economic exploitation of women.

The traditional lines of cleavage between the two schools of thought have been blunted by recent developments. The wage-hour act of 1938 sets up minimum wages for all employees on interstate commerce goods, requires time-and-a-half for hours worked above 40 a week or eight a day. Also, as a result of the war emergency, a score of states have suspended some or most of their protective legislation for women.

In May, 1943, the senate judiciary committee (three southerners, 15 non-southerners) reported favorably on an equal rights amendment, but in the following October the house judiciary committee (nine southerners, 18 non-southerners) voted 15 to 11 against the proposal.

By adopting equal rights and equal pay planks, also by giving women an equal number of seats with men on the platform committees of the national conventions, both parties have testified to the importance of the woman vote in the 1944 elections.

In the years immediately following the ratification of the federal woman-suffrage amendment in 1920, studies were made in various localities of how women were using their new right. The studies agreed that more women than men were keeping away from the polling booths. Women were timid, or they didn't believe in voting, or their husbands or fathers didn't want them to vote. The studies agreed also that these deterrents affected older rather than the younger women, also that more women would vote as they became more accustomed to the idea. Nevertheless, even the prohibition issue failed to bring as many women as men to the polls.

Exerpt taken from Journal & American, New York City. July 28, 1944.

Equal Rights Bill Fight Looms

The reconvening of Congress promised today to witness a renewed struggle by proponents of equal rights for women for House and Senate approval of a 22nd amendment to the constitution.

Congress will return Tuesday after a five-week recess, but it was uncertain whether the fight for the equal rights amendment would be launched immediately or delayed until September.

Indications are that Congress may take a second recess until after Labor Day.

Miss Alice Paul, chairman of the National Women's Party and leading figure in the 21-year fight for the amendment, hailed the Democratic action in Chicago, which reversed its stand of the past two decades, as tantamount to victory.

The significance of the Democratic action lay in the fact that it had resisted such a move for 20 years, whereas, the Republican Party had given its support at the 1940 convention.

First step in the revitalized campaign for the amendment will be to get a vote in the Senate, where a joint resolution sponsored by Sen. Gillete (D.-Iowa), and 23 colleagues, has been on the calendar waiting to be called up since it was favorably reported by the Senate Judiciary Committee on May 28, 1943.

Miss Paul claimed 52 Senators favor the legislation, with only 12 more needed to furnish the required two-thirds vote.

Tribune (IR), South Bend, Ind., July 28, 1944

FOR WOMEN

As the Cristian Science Monitor expresses it, "around the world there is a revolution in progress elevating women to equal status with men." In the United States the movement for a constitutional amendment eliminating the last bars to "equal rights" in all respects for women, which has been a perennial phenomenon since the voting privilege was extended to women by constitutional amendment, seems to be acquiring more force. This is not surprising in view of the uncommonly large number of women in industry, business and the professions because of the wartime employment conditions.

Many Americans who have noted the "emancipation" of women in somany respects in recent decades by statutory and practical developments may be perplexed by the campaign for another constitutional amendment. They would be enlightened if they had time to study.some of the state statutes still in force in the United States. On the whole women are still classified as "inferior" under those laws. As state reforms conforming with modern "emancipation" spirit have been delayed the constitutional amendment advocates are not handicapped by a shortage of ammunition. Some distinguished American women do not approve of the constitutional amendment campaign now but they seem greatly outnumbered.

This, as the Monitor remarks, is not a distinctive American phenomenon. While the General Federation of Women's Clubs was endorsing the "equal rights" amendment movement, giving it the most forceful practical push in 20 years, word came from Italy that the so-called "government of national union" had pledged itself to cooperate for establishment of a legislative assembly elected by "universal suffrage," which implies the voting privilege for Italian women. From that to additional concessions to women might not be a tremendous distance, as we are learning in the United States.

Although it has avoided positive commitment the committee headed by General de Gaulle has indicated approval of suffrage for French women. In China a proposed constitution, apparently reflecting the personal vigor and popularity of Mme. Chiang Kaishek, embodies a guarantee of "equal rights" for women. "Every day," the Monitor continues, "there is more evidence that in struggling to overthrow totalitarianism and bondage the world is loosing a new freedom for women (so that) they can help meet postwar problems and promote world peace." The issue is in the wartime propaganda zone:

"Don't think the axis isn't conscious of this world-wide revolution and trying to turn its benefits to its own ends. Washington monitors of axis overseas broadcasts have noted a change recently in broadcasts from Japan, especially those beamed to South America where women are just beginning to feel the urge to take part in public affairs. It hasn't been many months since the Japanese were preaching * * * a virtuous women stayed home. Now * * * they are beginning to brag about instances of equal pay for equal work for munitions workers and to play up instances where women have achieved equality under Japanese rule."

On the premise that "this kind of propaganda is at the same time a compliment and a menase" some American women are exerting themselves to offset it by trying to help women in some other non-axis nations to achieve at least the voting privilege. When the Inter-American Commission of Women assembled in Washington a few months ago it cabled to the Venezuelan legislature an endorsement of the votes-for women section of the draft of a new Venezuelan constitution being studied by the legislators. Women now are permitted to vote in only six of the 21 American republics. In Mexico the states have ratified women's suffrage but the federal government is holding it up. Having achieved suffrage themselves and become accustomed to it in two decades many American women are working circumspectly for it in other nations while they simultaneously strive for complete "equal rights" at home.

Excerpt taken from The Democrat, Waterbury, Conn. July 27, 1944.

Equal pay for Equal Work

By direct inference, which in this instance applies to the specific, the Democratic party platform, as proclaimed at the recent Chicago convention, may be seen to enter the Waterbury scene. We refer to that minor, but nonetheless important, plank of the national platform advocating the enactment of "legislation that provides for equal pay for equal work, regardless of sex".

As will be remembered the local women school teachers have consistently appealed to local authorities for the establishment of such a measure here as would apply to them. These women teachers of the local high schools, while performing exact same duties as the men teachers, receive $300 less within their annual salaries.

The local case has, with little trouble, been proven by its proponents to be a lopsided condition prevailing only because of a custom which has long been outmoded. Continuance of its existence has been termed an "injustice" by those authorities who have the power to abolish it.

It would seem to us that the advocation of equalization of pay for "Waterbury's women teachers" which is just what is advocated by the national platform, literally nails down the issue once and for all in favor of these teachers.

Tribune, Scranton, Pa., July 27, 1944

EQUAL RIGHTS FOR WOMEN

It was something of a surprise when the Democratic convention last week folowed the lead of the Republicans and included an equal rights amendment to the Constitution in its platform. The action was taken despite the opposition of Secretary of Labor Perkins and in face of opposition voiced many times by Mrs. Roosevelt.

It was not something new for the Republicans, however, for the G. O. P. declared for such an amendment in 1940 when a similar proposed plank was rejected by the Democratic platform committee.

Advocates of an equal rights amendment are led by the National Woman's Party. This group insists that special protective laws for women make it harder for many women to get jobs. It calls such laws unnecessary in this day and generation and maintains that by discriminating against women they deprive them of their full rights as citizens.

The opposition is led by the Women's Trade Union League, supported by the A. F. L. and the C. I. O. as well as many social welfare organizations. And they hold that legal restrictions on hours, pay and other conditions of employment for women are still needed to safeguard the health and prevent the economic exploitation of female workers.

The traditional lines of cleavage between the two schools of thought have been blunted by recent developments. The Wage-Hour Act of 1938 sets up minimum wages for all employes on interstate commerce goods, requires time-and-a-half for hours worked above 40 a week or eight a day. Also, as a result of the war emergency, a score of states have suspended some or most of their protective legislation for women.

By adopting equal rights and equal pay planks and by giving women an equal number of seats with men on the platform committee of the national conventions, both parties have testified to the importance of the women vote in the 1944 election.

Excerpt taken from Citizen (ID), Asheville, N. C. July 24, 1944.

"EQUAL RIGHTS"

After twenty years of vigorous resistance the Democratic Party has agreed to support a Constitutional amendment pledging "equal rights" for women. It recommends such an amendment in its 1944 platform. The document also sets forth: "We favor legislation assuring equal pay for equal work regardless of sex."

Both the current and the 1940 Republican platforms carry similar planks. The long crusade for "equal rights" for women appears to culminate politically in a year when potential women voters will out-number potential men voters by 600,000. The Constitutional amendment endorsed by both parties is already before the Senate where it lacks only twelve pledged votes of the two-thirds majority necessary to help send it on to the states.

For all of this, however, there is a wide area of disagreement on the efficacy of "equal rights" legislation. If it conferred any needed benefits upon women one would expect it to be endorsed by the majority of women leaders. On the contrary, it is opposed by prominent feminists such as Miss Mary Anderson, former chief of the Women's Bureau, Secretary of Labor Perkins and Mrs. W. T. Bost, former North Carolina Commissioner of Public Welfare, among others.

The proposed Constitutional amendment, it seems to The Citizen, is a meaningless generality. "Equal rights"? But when are "rights" precisely "equal"? And how can we set or alter our social customs to advantage merely by a Constitutional declaration?

On the other hand, there is much that might be lost. Years have been spent in creating adequate statutory safeguards for the protection of women in industry. Much of our best and most successful social legislation concerns women. All of this would be invalidated by a Constitutional amendment whose logic is at variance with lengthy social and legislative experience.

Both the Democrats and the Republicans in their unwisdom yielded to the National Woman's Party, which has been fighting for an "equal rights" amendment since 1923, and refused to heed the counsel of many capable women educators, social workers and club leaders. It is a regrettable circumstance, the more so because it signalizes the successful entry of another powerful pressure group on our already bloc-beset political and governmental scene.

TELEPHONE NATIONAL 4200.

***x Thursday July 20, 1944

Equal Rights

POST

We may be very sure that if the proposed equal-rights-for-women amendment to the Constitution were calculated to improve the lot of the weaker sex, Secretary of Labor Frances Perkins would not be leading a fight to prevent its indorsement by the Democratic convention. The campaign in favor of this proposal has been waged for years by reformers who, with more zeal than wisdom, fail to recognize that at best the demand for equal rights for men and women is a meaningless phrase. At worst such an amendment might be interpreted as a mandate to sweep away State legislation designed to protect women from industrial exploitation and to compel men to assume responsibility for dependent wives.

Innumerable State laws affecting the rights and privileges of women would be affected by passage of the proposed equal rights amendment. Laws governing divorce, social security, minimum wages, management of community property, etc., set up different standards and establish different kinds of rights for men and women. These differences are in many cases wholly justified. It would be madness to attempt to sweep them away by Federal legislation calling for equal rights, without even trying to define those rights.

Secretary Perkins is especially concerned about the possible effect of such sweeping proposals on family life and on women in industry. Presumably the equal rights amendment looks toward abolition of protective industrial legislation designed to safeguard the health of women by limiting hours of work, prohibiting certain kinds of exhausting work, forbidding night work, etc. Secretary Perkins realizes that the emancipation of women will not be assisted by tearing down the protective safeguards that help to maintain working efficiency. Nor will the lot of the housewife be elevated by Federal intervention that would necessitate wholesale changes in State laws governing family relationships—many of them conferring certain privileges and rights upon the husband because he is held responsible for the family welfare.

Undoubtedly many States have on their statute books anachronistic laws that deny women rights that should be accorded them as adult human beings. The way to correct such conditions is to bring pressure to bear upon State legislatures for revision or elimination of such laws. Progress will be slow, often to the point of discouragement, but at least it will follow well-defined lines and be based on rational procedure. The proposed Federal amendment would, on the other hand, create indescribable confusion by calling upon Congress to see that uniform laws dealing with the rights of men and women replaced the present countless State laws dealing with such rights.

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ADVANCE RELEASE | OFFICE OF WAR INFORMATION | ADVANCE RELEASE

NATIONAL WAR LABOR BOARD

For release in morning papers
of Thursday, February 24, 1944

B-1323

The National War Labor Board's policy of directing equal pay for equal work in dispute cases was affirmed today when the Board unanimously directed the Aluminum Company of America to establish rates at its Vernon plant in Los Angeles, California, on the basis of job content, irrespective of the sex of the worker.

The United Automobile Workers, CIO, is bargaining agent for the approximately 3,500 workers at the plant.

The number of women employees in the plant has increased from approximately 10 in January, 1941 to more than 600 at the present time.

The Board directed that a present differential of 10¢ an hour between the minimum hiring in rates for men and women should be maintained except on jobs where women were hired to replace men or on jobs where men and women work interchangeably.

The company and the union were directed to bargain on the question of establishing rates for women hired to do work formerly performed by men or who work interchangeably with men on the same jobs. The Board's order stated that the negotiations on this question should take into account any sepcial training period which may be required for women and not for men, and provision made for an intermediate rate for such training periods.

The Board denied the union's request for an impartial umpire to adjudicate disputes over women's rates.

The Board's order is attached.

7801

2-23-44

NATIONAL WAR LABOR BOARD

In the Matter of:

ALUMINUM COMPANY OF AMERICA,
Vernon Plant

February 19, 1944

AND

UNITED AUTOMOBILE, AIRCRAFT AND
AGRICULTURAL IMPLEMENT WORKERS
OF AMERICA, C.I.O., LOCAL 808

Case No. 2879

DIRECTIVE ORDER

By virtue of and pursuant to the powers vested in it by Executive Order 9017 of January 12, 1942, the Executive Orders, Directives, and Regulations issued under the Act of Congress of October 2, 1942, and the War Labor Disputes Act of June 25, 1943, the National War Labor Board hereby issues its Directive Order in the above-entitled case.

1. The differential between the minimum hiring-in rates for men and women shall be maintained, except on those jobs where women are hired to perform work formerly done by men or on which both men and women are employed interchangeably, in which cases women's rates shall be set in accordance with Section 3 below.

2. New rates for the five jobs referred to by the Panel on which by established practice women exclusively are employed shall be set after a careful evaluation. The details of the evaluation shall be fully disclosed to the Union. Any difference between the parties over the rates thus established shall be taken up through the grievance procedure.

3. The parties through collective bargaining establish rates for jobs for which women are hired to perform work formerly done by men or on which both men and women are employed interchangeably in accordance with the following principles:

    (a) On those jobs where women are hired to perform work formerly done by men or where men and women are employed interchangeably women shall be hired at the established hiring rate for men, provided that the women are not required to go through a special training period any different from that required of men.

    (b) Qualified workers, irrespective of sex, shall receive the same rates for each classified job. Standards of qualifications for entrance upon classified jobs shall not be applied on the basis of sex. Where training is necessary to qualify a worker for a particular classified job, the worker may be employed during the training period at the minimum rate or such intermediate rates below the entrance rate for the job as the Company has established or may establish, subject to adjustment under the grievance procedure in any case in which the Union believes the Company's practice is unfair or inequitable, and subject also to such agreements as may exist between the Company and the Union with respect to what are temporary and what are permanent assignments to classified jobs.

(c) In general, rates shall be set for classified jobs, irrespective of the worker, upon the basis of a proper evaluation of the duties and requirements of the particular job.

4. The Union's request for the appointment of an impartial umpire to settle grievances in regard to women's rates is hereby denied.

5. The effective date of any adjustments in wage rates for women made in accordance with the provisions of this Directive Order shall be determined by the parties on the basis of the facts of each individual case.

Representing the Public:	Representing Labor:
s/ Lloyd K. Garrison	s/ John Brophy
s/ Edwin E. Witte	s/ Delmond Garst
s/ Dexter M. Keezer	s/ James Brownlow

Representing Industry:

s/ Frederick S. Fales

s/ Walter T. Margetts

s/ J. H. Davis

(SEAL)

Excerpt from report of Mrs. Roosevelt's Press Conference, in the EVENING STAR, Monday, January 31, 1944

She (Mrs. Roosevelt) disagrees, she continued, with Vice President Wallace's suggestion recently of a constitutional amendment providing equal rights for women.

Mrs. Roosevelt believes that many laws differentiating between treatment of men and women are protective to women, and would want to handle the problem simply by having each State abolish those laws which discriminate against women while continuing to keep on setting up standards for them. A constitutional amendment, she believes, would be difficult to administer and would abolish good laws with bad ones.

WALLACE ASSAILED ON 'EQUAL RIGHTS'

(Source: New York Times, January 28, 1944)

Women's Trade Union League Seeks to Change His Mind on Proposed Amendment

EFFECT ON LAWS IS CITED

Scuttling of All U. S. and State Legislation Safeguarding the Sex Held A Prospect

The Women's Trade Union League yesterday attacked Vice President Henry A. Wallaces declaration in favor of the proposed equal rights amendment, made Wednesday in a letter to Mrs. Emma Guffey Miller, joint Congressional chairman of the National Woman's party. It challenged his declaration, point by point, and urged him to change his mind in the following letter:

"The New York Women's Trade Union League was deeply shocked to learn of your approval of the so-called 'equal rights' amendment--especially since opposition to it has been and still is an essential plank in the National Democratic platform.

"We are sorely tempted to question the consideration you have given the proposed amendment--which is so cleverly framed to capitalize on the genuine sentiment of the American people for democracy and equality.

"What makes you so eager to disregard the years of fruitful experience of millions of industrial women with minimum wage laws, hour laws and other beneficial regulations of their employment conditions? Was there no persuasion or significance for you in the fact that for over twenty years the women who labor in the factories, in mills, in the shops and on the assembly lines have consistently opposed this so-called 'equal rights' amendment as inimical to their best interests?

SCUTTLING OF LEGISLATION

"Is it, as you state in your letter, only of 'some possible temporary disadvantage to some women' that this amendment would automatically wipe out for millions of wage-earning women all existing legislation that secures for them wages that at least keeps them in good health? Is it only of 'some possible temporary disadvantage' that our Federal and State Governments would be barred for all times from enacting legislation that will advance the well-being of women? Is it only of 'some, possible temporary disadvantage' to scuttle legislation that in the pragmatic test has served to raise the economic status of women and has given to them the means to enjoy real equality?

"And what is this 'greater advantage of inner freedom' for which you so solicitously advise working women to sacrifice the material gains they have already achieved? Is it the stuff that buys bread and pays taxes and satisifes the landlord?

"No, Mr. Vice President, we women who work are realists (incidentally, it's that which keeps production up). We do not intend to drop the meat for the shadow of a bigger piece. Your promise of greater advantages in 'inner freedom' is far too reminiscent of Anatole France's description of the 'equality' and 'freedom' of rich and poor alike to sleep on the banks of the Seine."

The Women's Trade Union League is headed by Miss Rose Schneiderman, a pioneer in the organization of women workers, secretary of the New York State Department of Labor and a close personal friend of Mrs. Franklin D. Roosevelt.

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OFFICE OF WAR INFORMATION

ADVANCE RELEASE | NATIONAL WAR LABOR BOARD | ADVANCE RELEASE

For release in a.m. papers
of Saturday, January 8, 1944

B-1214

The National War Labor Board today unanimously upheld a decision of the Eighth Regional War Labor Board refusing to abrogate a collective bargaining agreement for the purpose of equalizing rates for men and women workers in 12 Houston, Texas, bakeries.

The Board rejected an appeal by the Bakery and Confectionery Workers Union, AFL, from the Regional Board's unanimous ruling that it could not void a clause in the contract between the union and the twelve bakeries providing for a rate for women one-third below that paid men.

A panel of the Dallas Board had recommended that the union's request for equalization of the rates be granted but the Regional Board rejected this recommendation on the grounds that it contravened the WLB policy of not abrogating collective bargaining agreements unless they conflict with the National Stabilization Program.

The union, on May 12, 1942, entered into a written contract covering about 500 workers in the following companies: J. Weingarten, Inc; Henke & Pillot; Scott's Bakery; Fehr Baking Company; Mrs. Baird's Baking Company; Federal Bakery; Paul's Bakery; Lewis Bakery; National Biscuit Company; Taystee Baking Company; Aunt Betty Baking Company; and the De-Lite Baking Company.

The contract, which is to expire six months after the war, provides for a union shop and specific wage rates to be paid in various job classifications. It also provided that if it was necessary to hire women to replace men during the war period, the rates for the women would be set at two-thirds of the rate paid to men in the same classifications. No women had been hired by any of the companies prior to the signing of this contract but most of the new employees hired in 1942 and 1943 are women.

The National Board unanimously concurred in the Regional Board's opinion that since none of the Executive Orders of legislative acts under which the WLB operates requires equal pay for equal work, the contract could not be opened by the Board to grant the union's request.

The Board has enunciated the policy of ordering equal pay for equal work in several cases where the terms of a new contract were disputed, and the equal pay principle has been made permissive, rather than mandatory, under WLB General Order No. 16.

The Board's order is attached.

6454
1/7/44

NATIONAL WAR LABOR BOARD

In the Matter of:

HOUSTON BAKERIES
(Houston, Texas)

and

BAKERY & CONFECTIONERY WORKERS'
INTERNATIONAL UNION OF AMERICA,
LOCAL 163, AFL

December 22, 1943

Case No. 111-2508-D

DIRECTIVE ORDER

By virtue of and pursuant to the powers vested in it by Executive Order 9017 of January 12, 1942, the Executive Orders, Directives, and Regulations issued under the Act of October 2, 1942, and the War Labor Disputes Act of June 25, 1943, the National War Labor Board, having considered the petition filed in the above entitled case for review of the directive order dated October 19, 1943 of the Regional War Labor Board for the Eighth Region, hereby decides the dispute between the parties and orders:

I. The said petition for review is hereby denied and the said directive order of October 19, 1943 is hereby affirmed and adopted as the order of the National War Labor Board.

II. The terms and conditions of employment set forth in said directive order of October 19, 1943 shall govern the relations between the parties, and shall be incorporated in a signed agreement reciting the intention of the parties to have their relations governed thereby, as ordered by the National War Labor Board.

Representing the Public:

s/ Frank P. Graham
s/ Wayne L. Morse

Representing Industry:

s/ George K. Batt
s/ Walter T. Margetts

Representing Labor:

s/ James A. Brownlow
s/ Van A. Bittner

(SEAL)

6438
1/6/44

CIVILIAN PERSONNEL CIRCULAR)
No. 26)

WAR DEPARTMENT,
Washington 25, D. C., 6 September 1943.

Section
Date of Civilian Personnel Circular No. 21---------------------------------- I
Equal compensation for equal work, irrespective of sex----------------- II

I--Date of Civilian Personnel Circular No. 21.--The date of Civilian Personnel Circular No. 21, 1943, which reads August 1943, is amended to read 27 August 1943.

(A. G. 230.23 (6 Sep 43).)

II--Equal compensation for equal work, irrespective of sex--1. The policy of War Department wage administration is to pay equal compensation for equal work. The manpower demands of the war emergency have made it necessary and advisable to employ an increasing number of women in war jobs which had previously been considered open only to men. Jobs having identical duties and responsibilities and requiring substantially identical skills, training, and effort, should receive equal compensation. Under this policy no differential shall be established by reason of sex, no recognition can be given to any differential based on sex, and such practice would not conform to War Department policy.

2. Through General Order No. 16, 24 November 1942, the National War Labor Board has granted employers permission to equalize the wages of male and female employees without prior approval. Inequalities in the pay of women employees of the War Department will therefore be adjusted in accordance with the principles stated in paragraph 1.

(A.G. 248.3 (4 Sep 43).)

By order of the Secretary of War:

WM. H. KUSHNICK,
Director of Civilian Personnel
and Training.

OFFICIAL:
H. B. LEWIS,
Brigadier General,
Acting The Adjutant General.

June 18, 1943.

Statement for "JUSTICE"

ON EQUAL RIGHTS AMENDMENT

By Mary Anderson, Director, Women's Bureau, U. S. Department of Labor

The Equal Rights Amendment will throw into jeopardy labor legislation for women in the States. That means that the work is lost that organized labor and progressive men and women everywhere performed in getting these labor laws on the statute books in the various States, such as minimum wage, limitation of hours, protective laws against special industrial hazards, and other legislative measures in regard to safeguards for the employment of women.

I do not need to recall the benefits of these laws to your membership, who have been in the forefront in working for such legislation. We have not yet been able to do away with all the exploitation of women. To take away whatever safeguards have been established would be disastrous, would certainly not be in line with our concepts of democracy. The Amendment would not extend such legislation to men, but it would take away the protection for women.

The Austin Amendment, which the Senate Judiciary Committee reported to the Senate, and which is now on the Senate calendar, only remedies that part of the legislation that would have taken away the States' rights to legislate. Otherwise it is just as vicious against the working women as the National Woman's Party Amendment.

The Amendment in itself does not rectify any legal discrimination against women. It is vague and there is no telling what construction the courts will accord to "equal" and "rights." The Amendment will require identical treatment of the sexes even when such treatment is unreasonable and has no regard to the difference in physical structure and social functions of the sexes, it will lead to unsettling confusion in the law of property and domestic relations and the application of social legislation generally, it will open up the floodgates of litigation. The fact is that unreasonable discriminations against women are being eliminated year by year, and that the Amendment will not hasten, but will create confusion and obstruct this continuing process.

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OFFICE OF WAR INFORMATION

NATIONAL WAR LABOR BOARD

For release in p.m. papers
of Friday, June 4, 1943

B 693

Adjustments to equalize the wage or salary rates paid to women with rates paid to men for comparable work may still be made without Board approval under the "Hold-the-Line" Executive Order of April 8, the National War Labor Board announced today.

WLB Chairman William H. Davis in a letter to Secretary of Labor Frances Perkins said in part:

"General Order No. 16 has neither been impaired nor amended as a result of Executive Order No. 9328. It stands today in full force and effect."

The Order permits an employer, without prior approval from the Board, to make adjustments "which equalize the wage or salary rates paid to females with the rates paid to males for comparable quality and quantity of work on the same or similar operations, " provided that such adjustments shall not furnish a basis either to increase price ceilings or to resist otherwise justified reductions in price ceilings.

"The application of the Order is quite plain and simple in cases where women are employed to replace men on jobs which are not changed," Mr. Davis sai

He emphasized, however: " The Order is liable to abuse, and wage adjustments cannot be made under it, without Board approval, unless they are made to equalize the wage or salary rates paid to females with the rates paid to males for comparable quantity and quality of work on the same or similar operations in the same plant. "

He specified two types of cases to which General Order 16 does not and never has applied:

(1) Jobs to which only women have been assigned in the past.

If there is a question of the correctness of the rate for such jobs in relation to other jobs in the same plant, the case is one of an intra-plant inequality and an adjustment cannot be made under the "equal pay for equal work" principle.

(2) Attempts to increase wages being paid to women in one plant on the ground that in some other plant similar work is being done by men at

a higher wage. "If the inter-plant inequality (existing in such a case) is in fact one that should be corrected at all, its correction is independent of any question of men and women workers," Mr. Davis pointed out.

Mr. Davis wrote to Secretary Perkins in response to an inquiry prompted by Miss Mary Anderson, Director of the Women's Bureau, on the effect of the "Hold-the-Line" Executive Order on General Order 16.

Since November 24, 1942, when General Order 16 was adopted, nearly 600 firms have reported the equalization of rates of over 19,000 women employees with rates paid to men for comparable work.

The letter from Chairman Davis to Secretary Perkins is attached.

The Honorable Frances Perkins
Secretary of Labor
Washington, D. C.

Dear Madam Secretary:

I thank you for your letter of May 13, 1943, enclosing the memorandum addressed to you by Miss Mary Anderson regarding the effect of Executive Order No. 9328 on the Board's General Order No. 16.

That Order permits an employer, without the prior approval of the Board, to make wage adjustments "which equalize the wage or salary rates paid to females with the rates paid to males for comparable quality and quantity of work on the same or similar operations" subject to the provision that such adjustments shall not furnish a basis either to increase price ceilings or to resist otherwise justified reductions in price ceilings.

General Order No. 16 has neither been impaired nor amended as a result of Executive Order No. 9328. It stands today in full force and effect.

The application of the Order is quite plain and simple in cases where women are employed to replace men on jobs which are not changed.

Where the plant management, in order to meet the necessity of replacing men and women, has rearranged or lightened the job, perhaps with the employment of helpers to do heavy lifting or the like, a study of job content and job evaluation should afford the basis for setting "proportionate rates for proportionate work." Such questions require a reasonable determination, by collective bargaining or arbitration, of the question whether, or how far, the newly arranged job is of equal quantity and quality with the old job. The new wage set on such a basis does not require the approval of the National War Labor Board under the terms of General Order No. 16.

We have found from experience that there has been some tendency to abuse this rule of equal pay for equal work.

This refers particularly to job classifications to which only women have been assigned in the past. The rates for such jobs, especially when developed by collective bargaining, are presumed to be correct in relation to other jobs in the plant.

Whether a job is performed by men or women, there may be a dispute over correctness of its wage rate in relation to rates for other jobs in the same plant. These are the so-called intra-plant inequality cases. Their determination should not be related to the "equal pay for equal work " question; they should be determined on the basis for maintaining or developing a proper balance of wage rates for various jobs based upon job evaluation.

We have even seen instances in which the workers have demanded, or the employers have proposed, that the wages being paid to women in one plant should be increased on the ground that in some other plant similar work is being done by men at a higher wage. Such proposals tend to overlook the fact that wages paid to men in the same occupation generally vary from plant to plant. In such cases, the question whether the work is done by men or women is irrelevant. The claim for increased wages immediately reduces itself to a simple question of different wage rates for the same work in different plants. Inter-plant inequalities in wage rates are quite commin in American industry, and often well-established. They afford a basis for a wage increase only in very exceptional cases. If the inter-plant inequality is in fact one that should be corrected at all, its correction is independent of any question of men and women workers.

In conclusion, I think you may say to Miss Anderson that our General Order No. 16 is in full force and effect. The Order is, however, addressed to employers who desire to make appropriate wage payments within their own established wage structures. The Order is liable to abuse, and wage adjustments cannot be made under it, without Board approval, unless they are made to equalize the wage or salary rates paid to females with the rates paid to males for comparable quantity and quality of work on the same or similar operations in the same plant.

Sincerely yours,

William H. Davis, Chairman
National War Labor Board

New York Times
May 10, 1943

LETTERS TO THE TIMES

Equal Rights Move Favored

Representative Celler's Objections to Amendment are Ctiticized

To the Editor of the New York Times:

A recent letter in your colums by Representative Emmanuel Celler raises certain points and asks certain questions with regard to the Equal Rights Amendment, now before Congress.

Mr. Celler calls this measure, which has received the backing of seventeen national organizations and several hundred State and local organizations, "the so-called Equal Rights Amendment." We do not speak of the rights of American men as the"so-called rights." The Woman Suffrage Amendment gave women one fundamental right-the right to vote. The Equal Rights Amendment will guarantee another fundamental right-equality under the law. This also is a principle worthy of inclusion in our national Constitutic

In connection with this measure, which would place in the United States Constitutior the principle that men and women shall have equal rights, Mr. Celler says: "This is no time to bring up such a controversial subject. This is the time for unity." How familiar that sounds to those of us who worked for woman suffrage! There is no better way to establish "unity" than to insist that the democracy which women as well as men are defending shall extend to women, as well as to men, the full and equal protection of the law.

STATE LAWS DISCRIMINATE

Discriminatory laws are to be found on the statute books of every State. In twenty-two States women are barred from jury service. In forty States property acquired after marriage by the joint effort of husband and wife belongs to the husband and is subject to his control. In several States a wife's earnings may be the husband's property. In New York State the wife is entitled to pay for employment outside the home, bur her earnings from sewing, boarders and other projects in the home belong to her husband. In Georgia the husband collects his wife's wages whether earned outside or inside the home. In every State the burden of support of an illegitimate child rests with the mother. Massachusetts, Michigan and New York are among the States where the services and earnings of a minor child belong to the father. In Alabama and Georgia the father is preferred as guardian of a minor child's property and person.

Aside from these actual discriminations which exist for women in the law today, there is also a constant threat of new discriminations. As a case in point Mr. Celler says: "Under a ridiculous interpretation of the word 'person' in the act of setting up our reserve army, women doctors could not be commissioned." But Mr. Celler's calling a ruling "ridiculous" does not change the fact that this ruling was made and that other equally riduculous and discriminatory rulings can be made, until we supersede the present legal tradition of inequality by a declaration of equality in the fundamental law of our land. This is no more nor less than writing the phrase "including women" beside each of the guarantees of liberty in our Constitution.

REPORTED FAVORABLY

In this sesion of Congress the subcommittees of both the Senate and House Judiciary Committees, charged with studying the measure, have already favorably reported it,the House subcommittee acting unanimously. All the members of these Judiciary Committees are lawyers. In addition, outstanding Americans who urge the passage of the Equal Rights amendment now, include Pearl Buck, Dr. Mary E. Woolley, James Truslow Adams, Dr. Arthur Meier Schlesinger, Professor of American History, Harvard University;

Miss Annie Goodrich, Dean Emeritus of the Yale School of Nursing; Dr. Florence Sabin, Dr. Lena Madesin Phillips, president of the International Federation of Business and Professional Women; Dr. Emily Dunning Barringer, Miss Georgia O'Keeffe, Miss Malvina Hoffman and Mrs. Margaret Culkin Banning.

The Equal Rights Amendment, when introduced in this session of Congress, was sponsored in the Senate by eighteen Democrats and six Republicans, and in the House by twenty-one Democrats and twenty-two Republicans.

As to the questions raised by Mr. Celler with regard to equality in age of consent grounds for divorce, support, etc--today equality has been achieved as workable on each point mentioned in certain of the States. Mr. Celler seems concerned that the States would be forced to accept a certain standard of equality. Mr. Celler should know that in this, as in other cases, each State would decide on its own standard of equality, but the mandate to the States would be that their laws should apply equally to men and women, within each seaprate jurisdiction.

The principle of equality is gaining ground in every field today. For instance, the Federal Fair Labor Standards Act, which applies to all workers in interstate commerce, fixes minimum wage and maximum hours alike for men and women. Many fundamental liberties have been established in the United States for both sexes. They will be made more secure by the adoption of the Equal Rights Amendment. Many discriminations still exist. Their removal will be accelerated through the adoption of the Equal Rights Amendment.

If the nations of the world succeed in establishing justice and freedom, it is inconceivable that women alone will be denied equal rights. After all, we are half the the people.

Anita Pollitzer

Chairman, N.Y.City Committee
National Women's Party
N.Y.C. May 7, 1943.

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OFFICE OF WAR INFORMATION

NATIONAL WAR LABOR BOARD

For release in Sunday papers
of May 9, 1943

B - 644

The National War Labor Board today announced it had no power to grant equal pay for equal work by women unless the Hold-the-Line Executive Order 9328 is clarified. It therefore has deferred action on a joint company-union request until this point is cleared up.

The Board also deferred action on the request for an increase in wages to eliminate inequalities within the plant of the same company-the Waukesha Motor Company in Waukesha, Wisconsin. Both wage requests came from the International Association of Machinists, AFL, bargaining representative at the plant.

Prior to issuance of the Executive Order 9328 on April 8, the Board's general order No. 16 granted blanket authorization for equal pay rates for women for equal quantity and quality of work. The Hold-the-Line Executive Order failed to renew the Board's power to correct gross inequities.

The National War Labor Board on May 7 announced that it had told the Director of Economic Stabilization that it was "unanimous in its conviction that this Executive Order is unworkable without further clarification of points which are not clearly covered or are not covered at all by the order."

"The Board unanimously believes that these points can be clarified within the frame work of a realistic and effective wage stabilization program which is in full harmony with the Administration's determination to roll back the cost of living," the Board's statement added.

The union contended in its brief before a panel which conducted hearings in this case, that a contract clause covering women's wages was necessary since an influx of women workers into the Waukesha Motor Plant was anticipated by both the company and the union as a consequence of the tight manpower situation.

The company did not contest the request of the union for this equal-pay clause and the only dispute was over the details of how the principle should be applied. The panel reported that the company "subscribes to the plan of equal pay for equal work but observes that in general women are unable to do substantially the same amount of work that a man can do, and that where this difference is manifest, it is only fair that it should be reflected in the earnings of the two groups."

The Board directed the company and the union to include in the contract between them a clause providing for a voluntary maintenance of membership with an "escape period beginning May 3, 1943.

The industry members of the Board dissented from the grant of union security.

Approximately 1,750 production workers are employed by the Waukesha Motor Company. It has had bargaining relations with the IAM since 1935.

The company and the union were able to arrive at a mutually satisfactory wage schedule with the aid of the NWLB panel. The wage adjustments provided for in the new schedule would serve to eliminate certain intra-plant inequalities.

This is the third case in which the Board has deferred action on wage adjustments based on inequalities pending clarification of its authority under Executive Order 9328.

The Board's order is attached.

NATIONAL WAR LABOR BOARD

In the Matter of:

WAUKESHA MOTOR COMPANY
(WAUKESHA, WISCONSIN)

and

INTERNATIONAL ASSOCIATION OF
MACHINISTS, DISTRICT LODGE NO.
48, LOCAL 1377, AFL

May 3, 1943

Case No. 401

DIRECTIVE ORDER

By virtue of and pursuant to the powers vested in it by Executive Orders No. 9017 of January 12, 1942, No. 9250 of October 3, 1942 and 9328 of April 8, 1943 the National War Labor Board directs as follows:

1. Action by the National War Labor Board on the questions of wages and equal pay for women are deferred pending clarification of the Board's policy under Executive Order No. 9328.

2. Union Security The parties shall incorporate into their new contract the following provision for union security:

> "All employees who, 15 days after May 3, 1943, are members of the Union in good standing in accordance with the Constitution and by-laws of the Union, and those employees who may thereafter become members shall, as a condition of employment, remain members of the Union in good standing during the life of the agreement.
>
> "The Union shall promptly furnish to the National War Labor Board a notarized list of the members in good standing 15 days after May 3, 1943. If any employee named on that list asserts that he withdrew from membership in the Union prior to that date, the assertion of dispute shall be adjudicated by an arbiter appointed by the National War Labor Board whose decision shall be final and binding on the Union and the Employer.
>
> "The Union agrees that neither it nor any of its officers or members will intimidate or coerce employees into membership in the Union. If any dispute arises (as to whether there has been any violation of this pledge or whether any employee affected by this clause has been deprived of good standing in any way contrary to the constitution and by-laws of the Union) the dispute shall be regarded as a grievance and submitted to the grievance machinery, and, if necessary, to the final determination

of an arbitrator appointed by the National War Labor Board in the event that the collective bargaining agreement does not provide for arbitration."

3. The parties shall incorporate into their new contract the following provision pertaining to Union business transactions during working hours:

   "No employee shall engage in any Union activity or Union business during working hours in any manner which will interfere with production."

4. Pending further study, the Board defers action on the question of the payment of Union Committeemen for time spent on grievances within the plant during working hours.

5. The parties shall incorporated into their new contract the following provision relating to leave of absence for Company employees taking full-time Union positions:

   "Any member of the Union elected or appointed as a full-time officer of the Local or International Union shall be given a leave of absence by the Company, without loss of seniority, for a period of one year. This period may be extended by mutual agreement between the Company and the Union. Not more than one (1) employee shall be eligible for such leave of absence in any one year, unless the Company and the Union mutually agree to augment this number."

/S/ Frank P. Graham

/S/ Robert J. Watt

/S/ Wayne L. Morse

/S/ Van A. Bittner

Dissenting on Paragraph 2:

/S/ Roger D. Lapham

/S/ Cyrus Ching

(SEAL)

From Congressional Record
Monday, April 12, 1943. Page A1901-A1902

Misleading Equal Rights Amendment

Extension of Remarks
of
Hon. Emanuel Celler
of New York
In the House of Representatives
Monday, April 12, 1943.

MR. CELLER. Mr. Speaker, pending before the House Judiciary Committee is the recommendation of one of its subcommittees providing for the so-called equal-rights amendment.

The resolution has been offered by Representative LUDLOW, of Indiana, and provides in article 1 that "men and women shall have equal rights throughout the United States and every place subject to its jurisdiction"; and in article 11, that "Congress shall have power to enforce this article by appropriate legislation."

As ranking member of the House Judiciary Committee, I shall vote against this amendment. It is all very well to say one is in favor of equal rights, but so-called equal rights raises many questions. It has far-reaching repercussions that cannot be disregarded.

It is easy to get the unwary and the unsuspecting to be in favor of equal rights, and just as easy is it to get everyone to be against sin.

Many States treat men differently than women and women differently than men. In many States the legal age for marriage is lower for girls than for boys. In a certain State the age of consent to marriage is 12 for girls and 14 for boys. Would the equal rights amendment increase the age for both boys and girls to 14 or lower it to 12? In other States, the husband's failure to support his wife is grounds for divorce. Would the shoe be on the other foot, giving the husband the divorce if the wife did not support him? In some States, the woman reaches the age of majority at 18. The man must wait until he is 21. Under the so-called equal-rights does the majority for a man become 18 or the majority for a woman 21? In California and a number of other States, there is what is known as community property, where a husband and wife own together whatever property may have been acquired during marriage. Would equal rights mean that in another State where at present there is no such community property, if a wife bought some property in her own name, the husband would also own it with her? If not, then what is meant by equal rights? Take jury service. In some States, women must serve on juries. In other States, jury service for women is optional. There is a third class of States where jury service for women is prohibited. In a fourth class of States, women must serve but are excused if they must take care of chileren. Which laws would be valid? They all cannot be valid under equal rights.

I want women, wherever possible, to be placed upon an equal status with men. For that reason; that is, I have fought to allow women doctors to serve in our armed forces on a parity with male doctors. Under a ridiculous interpretation of the word "person" in the act setting up our reserve army, women doctors could not be commissioned. The Comptroller General and the Secretary of War hold that wherever in that statute the word "person" is used, it means "man" and not "woman." Thus a "woman" is not a "person." That of course, is ridiculous. I am fighting to change that statute so that wherever the word "person" is used, both man and woman would be meant. Wherever a woman can do the same work as man, by all means let there be equality. But, because of biological reasons, many States have set up statutes which protect the economic, physical, and social status of women; like maternity and infant protections, no night work, special minimum wage and maximum hours arrangements. These beneficial statutes do not, should not, and cannot apply equally to men. The equal-rights amendment would destroy this hard-earned protection. This amendment would destroy beneficent industrial legislation in the interests of women and would impose extreme hardship on women who work. How about widows' pension rights? The rights of dependent wives and children to support of a husband and father? In the event of divorce, shall we do away with any preference that is given to the mother as to the custody of children? The courts would be jammed to capacity for an indefinite period to degetmine cases involving these difficulties.

Furthermore, no standard of equality is stated in the amendment. Would that mean a single Nation-wide standard is applicable all over the country? Or would it mean that each State may determine its own equality within the State's confines?

The amendment authorizes Congress to enforce equality by appropriate legislation. Does this mean that Congress must act in fields now reserved exclusively to the States in matters having to do with marrigge, divorce, support laws, property laws and so forth.

It is so easy to be in favor of equality. But remember, this amendment would constitute one of the most extreme and one of the most extensive changes in the relation of States to the Federal Government and in the relation of the Federal Government to the States. These changes would be cataclysmicc.

Furthermore, the correspondence I am receiving indicates hppeless confusion in the minds of the rank and file of women throughout the Nation. The women themselves are hopelessly divided on the issue.

This is no time to bring up such a controversial subject. This is the time for unity. Women should get together to correct whatever inequalities exist in the State laws, between men and women. These inequalities should be levelled off, until if, as, and when they make for the best interests of all--both men and women.

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ADVANCE RELEASE

ADVANCE RELEASE: For SUNDAY Papers, April 11, 1943
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OFFICE OF WAR INFORMATION

W-156

WAR LABOR BOARD

WOMAN'S PAGE EDITOR: War employment has given definite support to the demand for "equal pay" for women. This release outlines some of the accomplishments along that line.

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Over 500 companies have equalized rates paid to women with rates paid to men for comparable work under the authority of the National War Labor Board's general order which permits such wage or salary adjustments without prior WLB approval. This order has been the basis for equalizing rates paid to more than 18,000 women, reports received by the Board up to the middle of March showed.

The "equal pay" principle has been advocated since women first trooped into industrial work during the last war. Since then it has been recognized that the women who replace soldiers in industry must be protected against a deterioration of working standards. The Government - and in many cases unions and management - recognizes this need, both as justice to the women workers and as a guarantee to soldiers that their wage rates will be maintained until they return from the front to the factory.

In addition to pay adjustment cases in which management voluntarily or in agreement with a union may equalize women's rates with those of men, the War Labor Board has a long record of labor dispute cases in which such equality has been directed.

The form of "equal pay" clause most frequently ordered by the Board reads: "Wage rates for women shall be set in accordance with the principle of equal pay for comparable quantity and quality of work on comparable operations." This clause was first ordered in a case involving the General Motors Corporation and over 200,000 employees represented by two CIO unions, the United Automobile Workers of America and the United Electrical, Radio and Machine Workers of America.

The Board has ordered several varieties of "equal pay" clause in adopting the principle to different cases.

"The Company shall pay equal pay for equal work," was the simple form first ordered, five months after Pearl Harbor, in the case of the UAW-CIO and the Breeze Corporations, Newark, N. J.

A step toward ironing out inequalities between rates for men and women was taken in the case of Remington Rand and the United Electrical Workers, CIO, when a 2½ cent hourly increase in certain starting rates for women was granted, while a general increase to all employees was denied.

Another and very specific form of clause was ordered in the case of the Norma-Hoffman Bearings Corporation and the UE-CIO, representing 1260 employees. It read in part:

> "When women take the places of men and fully perform all of the tasks previously performed by men, they shall be paid the same wages as the men thus replaced. Where, however, the assistance of men is necessary, as in the handling of heavy material or the setting up of machines, a recognized differential based upon proper time studies shall be established. If the Union deems the differential to be improper, the question shall be disposed of under the grievance procedure."

The idea that women are physically unable to replace men on the job was blasted by a panel whose unanimous report on the case of the Brown & Sharpe Manufacturing Co. and the International Association of Machinists, AFL, was upheld by the WLB. The panel told the Board that the company was willing to reduce whatever differential now exists between the rates of pay for men and women so that it would not exceed 20 percent. In recommending that this discrimination between men and women be ended, the panel said the following:

> "If this panel may have a small part in demolishing the fictions and the fallacies which have arisen from certain facts of female

physiology, it will have served a worthy purpose ... The idea of 80 percent efficiency of women has evolved from a biological phenomenon which applies only to a period of time and not to relative efficiency and competence at other times. There is no proof, scientific or otherwise, that women are 20 per cent less capable than men all the time."

Around 15,300,000 (fifteen million, three hundred thousand) women are now at work, exclusive of those in agriculture. One million six hundred thousand of them are in war production; 1,500,000 (one million, five hundred thousand) in essential services. This is an increase of almost 3,000,000 (three million) (about 17 percent) over a year ago and of nearly 5,000,000 (five million) (30 percent) over the end of 1940. Women now constitute over 25 percent of the country's total labor force, and it is estimated that by December of this year over 17,000,000 (seventeen million) women will be at work, constituting nearly 28 percent of total employment in the United States. Of these 17,000,000 (seventeen million), over 5,000,000 (five million) will be in direct war work.

In manufacturing industries alone, there were nearly 600,000 or 20 percent more women wage earners in October, 1942, than in October, 1941.

In particular war industries, the increased employment of women is even more impressive. Compared with 4,000 women employed in aircraft factories at the time of Pearl Harbor, there are 185,000 today -- 46 women where one stood. Compared to 2,500 women employed in shipbuilding in March 1942, there are over 40,000 today -- 16 where one stood.

These women, indispensable to America's war effort and to the maintenance of essential civilian production, deserve equal pay for the man-size jobs they take over. The National War Labor Board and its twelve regional Boards across the country assist in bringing about such equality.

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CIO News
March 29, 1943.

WRONG 'RIGHTS' AMENDMENT - ON DECK - LABOR MUST ACT!

The "Equal Rights" Amendment, one of the oldest pieces of anti-labor legislation before the Congress, is in danger of passing both Houses in 1943 unless organized labor and women's groups institute a drive to defeat it.

Introduced 20 years ago, the amendment has paraded since then as a worthy measure to abolish discrimination against women in the 48 states and territories. It reads:

"Men and women shall have equal rights throughout the United States and every place subject to its jurisdiction."

Active champions of the bill have been limited to members of the National Women's Party, a small and reactionary group who openly advocate the abolition of laes regulatin the hours, wages and working conditions of women working in intra-state commerce.

SENATORS MISLED

Misled by the phrase "equal rights," men like Senators Kilgore and Pepper, who could not be in any sense called anti-labor, have gone on record for the bill because their labor constituents have not opposed it, and because of the incessant visits of the Women's Party.

The bill is at present before the House and Senate Judiciary Committees. Unless the voice of opposition is heard on it, it is expected to be reported out favorably by the Senate Judiciary Committee.

The passage of the phoney "Equal Rights" Amendment would mean that the laws whicl organized labor has fought for 100 years would be obliterated at one stroke. State hou laws limiting women's work to eight, ten and 12 hours a day would go. So would minimum wage orders in the service industries and other occupations in intra-state commerce.

Maternity provisions, widows pensions, all laws that differentiate between, not discriminate against women--,would be thrown out as unconstitutional.

Quoted from 196 with reference to W B omitted

The CIO NEWS, March 15, 1943

Equal Pay for Women in War Industries

Part One

By Research and Educational Dept.

Women in industry today are working side by side with men. Many are taking over work formerly done only by men. There is no doubt that such cases will increase markedly as the war needs for industrial labor become ever more acute. For this reason it is vital to establish sound standards for women's wages.

Wage rates for women should be the same as for men, including the entrance rate.

As women are called into war production, there are several reasons why it is essential to the efficient conduct of the war to provide adequate wage standards for these workers, many of them new to industry.

1. To keep up the health and morale of the workers who supply the sinews of the war is as important as to develop the physique of the soldier. The worker's wage is the basis of health and morale, it must be sufficient for support.

2. It is basically unfair to pay one worker a lower wage than another for substantially the same work.

3. Men leaving to go into the armed forces must be able to feel that the women who carry on in industry are not being forced to undercut established wage standards.

4. It is sometimes argued that men's wages are higher because they support families. But today a large percent of the employed women also support dependents. This will be increasingly the case during the war (even with the family allotment). Moreover, young men without families are not paid a lower wage because of having no dependents.

5. Every effort must be made now to prevent a disastrous slump after the war. Keeping up the industrial wage standards during the rapid entrance of new women workers is one important block that must be laid now toward building the past-waar structure.

DOING SIMILAR WORK

Today both men and women are working on jobs similar to those women have always done in peacetime: Both men and women are working on jobs formerly done almost altogether by men; Both men and women are working on jobs that, under traditions of World War I and of arsenal employment then and today, might be considered women's. Men are working on jobs in one plant that women are doing in a similar plant. Men and women are working side by side on the same work in the same plant.

The great majority of occupations and the industrial processes of today are in no wise exclusively men's or women's.

As far back in 1930, women were found in all but 30 of the 534 occupations classified in the census. More recently, newer types of work have appeared on the horizon, and women have been employed in many jobs not before done by them. A recent survey by the U. S. Employment Service found that women could perform 80 percent of more than 1,8000 processes in key war industries.

Sometimes plant changes are made when women are put on processes they have not before performed in the plant. Such changes are no greater in extent than those that progressive industry constantly makes for a variety of reasons to keep abreast of inventions or newly devised work methods. These improvements cannot properly be charged against the workers.

BOSS BENEFITS

The employer makes the capital outlay on changes in process in order to facilitate production, to market a newly needed product, or to effect some saving. He introduces women for similar reasons, and thus makes use of an available labor supply in a time of need. Data on women's output show that in the end he gains thereby. Changes made for this purpose are a matter of engineering efficiency, and in no wise an expense to be borne by the women workers.

It is often stated that women in industry are doing "light work" or the "light repetitive" rather than the "heavier' jobs. The lightness of an operation does not indicate the degree of skill it requires, and does not form any adequate basis for wage determination.

A "Light" job often represents a high order of skill, exacts a large share of the worker's energy, and is of great importance to the product. Accordingly, the wage rates should be high enough to fit these characteristics of the job.

SKILL REQUIRED

Such work frequently requires a delicate and careful touch, manual dexterity, rapid machine operation, quickness of hand and brain. Examples of jobs that might be classed as "light work,' though they require a high degree of skill, are: The assembling of the fine parts of aircraft or ship instruments, or of a time fuze; the screwing together in proper arrangement of different small parts of ammunition for artillery pieces; the final inspection of small aircraft parts as fast as they are turned out; the assembly of an electrical system for an aircraft instrument board, or of the entire instrument board; the operation of a press stamping out small metal parts; or of a drill making fine holes at exactly the proper places in small metal parts.

Obviously these so-called "light" operations require a greater degree of skill than that of the movement or the material handler who lifts or carries heavy weghts.

A "light" machine requiring great speed of operation or the accomplishment of a quick monotonous process may be far more exacting, actually may use up far more of the performer's physical energy, than work requiring chiefly muscle or brawn and entailing but little dexterity or judgment.

It may be far more important to the product than some of the heavier jobs, and may be worth a better wage. Repetitive jobs call for a large degree of concentration or continuous application, and if they involve following the machine, failure in concentration may mean physical disaster to the worker as well as ruin to the product.

SAVING SKILLED LABOR

The process performed by the worker is not the less skilled in character because a helper or a machine does any heavy lifting involved, nor is it less skilled than the operation of a heavier machine on which other requirements are no more exacting. On the heavier as well as on the lighter machine, whether operated by men or by women, the addition of lifts or of a helper for several operators ofter has been found to effect a saving.

Heavy lifting or carrying now is more and more done by machine power, and the introduction of mechanical lifting and handling devices is not in itself a basis for lowering wage rates.

Industry of today more and more is eliminating the use of human beings for heavy manual labor. Instead it employs human capacity in skillful manipulative processes, and jobs requiring a high degree of dexterity. One of the most important values of the machine age is that it can free human beings from exhausting physical burdens. Examples of practical methods used by engineers to reduce human lifting follow:

In an aircraft plant, suspending an air-operated wrench from a counter-balanced support had eliminated the necessity for lifting and handling. A woman replacing a man in the use of the wrench was able to operate two such counter-balanced air-driven wrenches simultaneously instead of the one formerly operated by the male employe.

In a machine-tool plant multiple spindles were attached to milling machines, making it possible for a girl to operate four machines with fewer steps from one to another.

The proper conservation of labor is a factor vital to the whole organization of production, to employer as well as worker ,and to the Nation's very life. When the need for output is great, skilled work and skilled workers must be used to the best advantage.

THE FEMININE TOUCH.—The hand that once rocked the cradle is now busy with the rocker arm of a punch press turning out shell casings or parts for 75 mm. cannon in many factories throughout the Nation. In hundreds of crucial war jobs women are replacing their fathers and brothers as more and more men are called into the armed services. And the women are making good, too. Where deftness of touch and delicate operations are concerned, skilled women workers are just about tops, according to reports from numerous airplane and precision instrument plants. More than 13,000,000 women are now employed and 5,000,000 more will be added to the Nation's pay rolls by the end of 1943. Thousands of young women and girls are now taking special training to fit them for skilled work in America's industrial arsenal. Above, a veteran machinist instructs an 18-year old apprentice in the operation of a press turning out parts for a 75 mm. cannon.

SAVING LABOR

It is no economy of labor to employ the brute strength of human beings for heavy jobs which can be done by machinery and release human labor for processes of greater skill, delicacy, or dexterity.

Much of the effort to train new workers and to upgrade workers is based on the principle that it is no economy of labor to employ on an unskilled job a worker capable of developing greater skill. It is in line with the policy to use machinery wherever possible for the heavier lifting or carrying, and this especially can be done on new jobs and in new plants.

WOMEN'S OUTPUT

One of the first questions the employer wants answered when he considers women's wage rates relates to their output and the efficiency of their work. There is a considerable body of evidence to show that the industrial efficiency and output of women are as satisfactory as those of men, in some cases more so. Especially is this true where the individual is properly suited to the job and the conditions of work are adequate.

In particular, women are found more proficient than men on certain operations that require care in measurement, fine handling, or light skilled work. Women compare favorably with men, too, in learning time, in some cases learning more rapidly. Considering women's inexperience in mechanical training, this is an especially good record.

In packing and inspecting link belts used for feeding ammunition into machine guns, women's output in a Government arsenal was reported to be 40 percent greater than men's.

More mechanical time fuzes are being produced per employe than ever before in a Government arsenal where 96 percent of the employes at work on them are women, though a few years ago only two percent were women. Some part but by no means all of this can be referred to changes in the process, but the foreman felt strongly that women's production on these tiny parts was far superior to men's.

Other processes in Government arsenals in which women in some instances have been found to produce more than men are in the operation of internal grinding machines formerly operated only by the most skilled men, and on several types of machining operations in the manufacture of rifles.

AS INSPECTORS

Women learned faster and did more careful work than men in inspecting operations in the manufacture of cutters for gear shapers, which involved careful measurements by the use of optical comparators, laboratory microscopes, circular pitch machines, cone machines, and other special measuring devices.

A woman operating a sensitive drill in an aircraft plant had maintained a record of double the output of the man formerly on the job. In machine-tool plants, women who had been employed only a short time were reported doing well in production on milling machines, drill presses, gear hobbers, grinding machines, and inspection.

In one case a woman's work exceeded that of most other workers, including men, in grinding broaches for barrel-riffling machines, setting up her own work, and grinding to almost inconceivably fine tolerances.

A girl spot welder in an airplane plant had more than doubled the previous records of boys on the same job. Women doing acetylene gas welding on stainless steel manifolds for aircraft engines had passed Army-Navy weld tests two to one better than men on this operation, which is light but very skilled work—in fact it is one of the most difficult types of welding.

IN CALIFORNIA

Recent surveys of California firms employing a number of women in different industries found that in all cases there was an increase in production per hour, and a lowering of cost per unit, particularly where women were employed at the same wage and on the same jobs as men.

The management of major metal plants on war production of parts recently stated to a Women's Bureau agent that women meet the schedule well, in some instances better than men, and ofter produce more than men. This is verified by occasional time-study checks.

In aircraft manufacture a drilling operation required that a very small hole be drilled in small metal pieces. A man on the job drilled 650 holes a day; when a girl was put on she kept up a record of 1,000 holes a day.

In aircraft plants: On jobs in the woodwork shop, girls were working as fast or faster than men; in the tubing department output increased more than the proportion of women added; a 2-year plant record of men had been broken a few weeks after women were put on such work as inspection, machine-shop operations, precision assembly, sheet-metal work, tail and wing assembly, shearing, trimshop work, and other occupations.

DURING WORLD WAR I

Certain of the studies made during World War I give outstanding evidence that women's output takes its place satisfactorily with that of men. For example, of 267 metal-working firms reporting on the substitution of more than 13,000 women for men in 14 occupations, the proportion stating that women's output was equal to or greater than men's ranged from 56.8 percent of the firms reporting on grinding and polishing to 84-6 percent of those reporting on welding.

In another of the World War I studies, on women in Cleveland, Ohio, employed in plants and on process to which they were most accustomed, the output of women and girls was found to be greater than that of men and boys by 64 percent of those reporting for the clothing industries.

In a study of women employed in the metal trades, made at about the same time by the National Industrial Confernece Board, two-thirds of the employers reporting on production stated that women's output was equal to or greater than that of men.

In a study of the replacement of men by women in New York State industries during World War I, made by the State Dept. of Labor, it was found that even in cases where the women produced more that the men they received lower wages than the men doing the sam work in the same plant.

SHORT HOURS

One of the primary requirements for maintaining output is hours so short that the worker does not become over-fatigued and thereby unable to keep up production. The fine processes and the dexterous hand work often done by women appear to be just the types of occupation that lend themselves best to the maintenance of an even production schedule throughout the day, provided daily and weekly hours are sufficiently short and rest periods are arranged suitably to fit the needs of the job.

There is well-established evidence, based on scientific experiments and long factory experience, showing that production falls if daily or weekly hours are too long. The experience of the present war repeats and aguments of this evidence.

A recent report of the British Industrial Health Research Board states that the long hours of June and July 1940, plus the extra effort made by the workers, usually were detrimental to sustained productive effort.

Women on capstan lathes in World War I increased their output 13 percent where work hours were shortened about 13 percent.

A study of the iron and steel industry in the United States made by the Bureau of Labor Statistics considered the 10 and 12-hour day in 1922, when production of a ton of pig iron required 3,270 man-hours. Daily hours were reduced to 8 in 1923, and in 1924 the ton of pig iron was produced in 2,662 man-hours.

Thus the shortened hours caused a reduction of nearly one-fifth in man-hours required fo rthe job. In this interval no mechanical improvement of any importance was introduced.

HIGHER OUTPUT

In comparing an 8-hour and a 10-hour metal-working plant, the U. S. Public Health Service found the shorter hours enabled production to be better maintained throughout the day; output could be kept up through the day best on dexterious hand work.

Records of a major electrical company over a 5-year period show that output increased, especially on repetitve monotonous work, where proper rest pauses were introduced. The increase was greater if food also could be had.

An investigation by a committee of the Federation American Engineering Socities of a continuous-process industries that had changed from a 12-hour to an 8-hour day reported no technical difficulties, and a production increase of 25 percent or more in some plants in practically every major continuous-process industry, accompanied by marked decrease in absenteeism and labor turn-over.

The United States Government Printing Office, after changing to a 5-day week (40 hours) in 1932, reported that the production per worker had increased by from 4 to 10 percent.

BUS STOP
BUS Co
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The man who thought he'd use the bus after his tires wore out

Federation of Glass. Ceramic & Silica Sand Workers

GLASS, CERAMIC
AND SILICA SAND
WORKERS EDITION

THE CIO NEWS

IT TAKES BOTH
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MARY ANDERSON DIR
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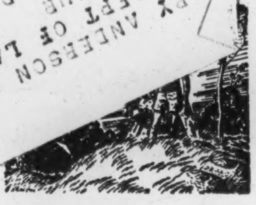
Freedom of Speech

Freedom of Religion

Freedom From Want


Freedom From Fear

Our Freedoms and Rights

Selected by Research and Educational Dept.

WE LOOK FORWARD TO SECURING, through planning and cooperative action, a greater freedom for the American people. Great changes have come in our century with the industrial revolution, the rapid settlement of the continent, the development of technology, the acceleration of transportation and communication, the growth of modern capitalism, and the rise of the national state with its economic programs.

Too few corresponding adjustments have been made in our provisions for human freedom. In spite of all these changes, that great manifesto, the Bill of Rights, has stood unshaken a hundred and fifty years. And now to the old freedoms we must add new freedoms and restate our objectives in modern terms. These are the universals of human life:

FREEDOM OF SPEECH AND EXPRESSION, FREEDOM TO WORSHIP, FREEDOM FROM WANT AND FREEDOM FROM FEAR.

Any new declaration of personal rights, any translation of freedom into modern terms applicable to the people of the United States here and now must include:

1. THE RIGHT to work, usefully and creatively through the productive years.
2. THE RIGHT to fair play, adequate to command the necessities and amenities of life in exchange for work, ideas, thrift and other socially valuable service.
3. THE RIGHT to adequate food, clothing, shelter and medical care.
4. THE RIGHT to security, with freedom from fear of old age, want, dependency, sickness, unemployment, and accident.
5. THE RIGHT to live in a system of ree enterprise, free from compulsory labor, irresponsible private power arbitrary public authority, and unregulated monopolies.
6. THE RIGHT to come and go, to speak or tobe silent, free from the spyings of secret political police.
7. THE RIGHT to equality before the law, with equal access to justice in fact.
8. THE RIGHT to education, for work, for citizenship, and for personal growth and happiness; and
9. THE RIGHT to rest, recreation and adventure; the opportunity to enjoy life and take part in advancing civilization.

These rights and opportunities we in the United States want for ourselves and for our children now and when this war is over.

A NEW WORLD

They go beyond the political forms and freedoms for which our ancestors fought and which they handed on to us, because we live in a new world in which the central problems arise from new pressures of power, production, and population, which our forefathers did not face.

Their problem was freedom and the production of wealth, the building of this continent with its farms, industries, transportation, and power; ours is freedom and the distribution of abundance, so that there may be no unemployment while there are adequate resources and men ready to work and in need of food, clothing and shelter.

It is to meet this new turn of events, that the new declaration of rights is demanded. But in formulating these new rights, we are not blind to the obligations which go with every right, obligations of the individual to use well his rights and to insist on the same rights for others, and obligations of the community to support and protect the institutions which make these rights actual.

We believe that the American people are ready to assume these obligations and to take the private and the public action they impose.

LEGISLATIVE COMMITTEES

The National Association of Manufacturers, in conjunction with the reactionary forces in the country, is organizing to sabotage the New Deal and the social and labor legislation. There is evidence of this in proposed anti-labor legislation in the present Congress and proposed legislation in several Southern states to curb or abolish unions and their functions. The campaign to besmirch labor as unpatriotic is part of this campaign.

The recent announcement of the formation of a united legislative front of the AFL, the CIO and the Railroad Brotherhoods is a step in the right direction. The labor-baiters and reactionaries must be stopped. The voices of the people should manifest itself despite an unfriendly press.

It is the duty of each local to form legislative committees to take an interest in pending bills, either before state legislatures or Congress, and to arouse the community in which you live. Labor is the mainstay of our democratic institutions. Yet, labor is maligned and vilified, sometimes by its would-be friends.

It is time to call a halt to labor-baiting and fault finding. It is time to give labor the recognition due it for the splendid patriotic job it is doing in the war effort.

It is time to stop playing politics and concern ourselves solely with the job of winning the war. Too many of us are luke-warm about what's going on, while the Roosevelt haters are girding themselves to do away with the New Deal.

CAPT. RICKENBACKER

Capt. Rickenbacker's oft-repeated advice to labor to give up time-and-a-half for overtime comes with bad grace and is not in the spirit of the war effort. The captain is a national hero, and as such we admire him, but when he starts delving into economics and advises labor on overtime pay, we wonder why he doesn't give similar advice to employers on limiting profits and salaries. If a glass worker earning $25 a week, before deducting taxes, is to be deprived of overtime pay, why shouldn't the salary of an employer be limited to $500 a week net, after paying taxes, insurance, etc.?

Capt. Rickenbacker has attacked the President's proposal to limit salaries to $25,000 a year; but he is so vitally concerned with the workers' time-and-a-half for overtime. He certainly is not helping the war effort by bringing dissention and confusion and throwing aspersions on an important patriotic and loyal element, which is giving and sharing its loyal element, which is giving and sharing its all in this war—even more than the rich. Indeed, some people rightfully charge him with playing politics and serving class interests.

It would be well for the captain to remember that the rubber boat which saved his life was produced by members of the UAW of the CIO, and along with him in this rubber boat were two members of organized labor. That alone ought to be a reminder to him of labor's participation in the war effort.

Members in the Service

Local 20 Mount Vernon, O.

Forrest Gaylord Albert, Joseph A. Arquilla, William E. Bartlett, William Carroll Bown, Arthur Donavan Branyan, John Hawk Britton, Dallas C. Coad, Harold Cookman, Raymond Davis, Clyde Carroll Deem, Frederick D. Deem, Raymond E. Dexter, Everett F. Dorsey, Mike Drabick, James Arthur Dutt, Lawrence Fawcett, Kenneth R. Feasel, Richard Sumner Graham, Marcus C. Grassbaugh, James J. Gueulette, Vernon Hatfield, Miles Jessup, Jr., Wilbur Francis Kinney, Ernest E. Lannoy, D. Harrison Lee, George W. Lee, John T. Lee.

Clarence Lober, Paul R. Lyons, Michael M. Mactko, Delbert Marvin, Carl Minideo, Geral V. Patten, Victor L. Payne, James W. Rine, Elvin Sellers, Kenneth M. Simpkins, Alfred Sleeman, Donald D. Snoke, Jr., Ralph R. Stopher, Donald Sutherland, Ralph Waldo Swank, Harry E. Swoger, Clarence Paul Thompson, Earl E. VanRiper, Howard N. White, William Wilmotte, Herbert Wayne Yarman, Wallace H. Schooler, Francis Flynn, Lee Roy Hanna, Jr., Stanley Wendereusz.

Buffalo Local 44

Stanley Rak.

Relief Appointment

Columbus, O., March 13—Announcement of the appointment of George F. Delaplane as regional director for Ohio of the National CIO Committee for American & Allied War Relief was made this week by Ted F. Silvey, secretary-treasurer of the Ohio CIO Council. Delaplane replaces Joseph H. Pataky, who entered Army service.

GIVE
+
WAR FUND

Exec. Order 9240 And How It Works

By Research and Education

In the last issue of the CIO News one of the hot potatoes mentioned was concerning the Executive Order 9240. A considerable amount of confusion exists as to the interpretations of the order and its application to the workings in a particular plant or department. Below is the latest interpretation issued by the Department of Labor, Feb. 17.

It might be well to repeat the preamble: "The Secretary of Labor, pursuant to Section V, is authorized and directed to interpret the provisions of Executive Order 9240. This bulletin is intended to set forth the Secretary's interpretations.

"The order was designed (1) to facilitate round-the-clock war production; (2) to discourage absenteeism found to have resulted from the practices of paying premium rates for particular days as such, and (3) to assure, in the interest of efficiency and health, observance of the principle that workers should have at least one day of rest in each week.

"The interpretations embodied in this bulletin have been made after a number of months of experience under the order and are believed to be in accord with its purpose. The opinions set forth here are effective March 1, 1943."

ON OVERTIME PAY

I will not attempt to rewrite the entire bulletin containing the interpretations, but I will point out the items and paragraphs we have been having trouble with. It has always been the union's contention that if a holiday fell within the week and the employes worked the holiday and over the 40 hours per week they should be entitled to overtime premium pay for both and one should not offset the other.

The company's argument all along was that by so doing they were paying overtime on overtime, which is certainly not the case. Most of the companies have consistently refused to meet both obligations as they should have without argument, but if they can snatch a penny and then save it, that is their game.

We could never see where it was fair for the company to compel an employe to come to work on a holiday and work over the weekly limit and say we are paying for both by paying for one. There is just about as much logic to their arguments as some person speeding and stealing and saying I paid my fine for speeding, and that should do for my stealing.

But the interpretation says the Order 9240 means, "The time and one-half premium pay required for work on the six holidays designated in the order may not be offset or credited against overtime or premium pay required for any other day or portion of the work-week by virtue of this order or applicable statute, such as the Fair Labor Standards Act, the Walsh-Healy Act, or the Federal Eight-Hour Law.

"For example, an employe works six days of eight hours each or a total of 48 hours in a work-week. The second day is one of the designated holidays and the eight hours worked on that day must be paid for at time and one-half. This premium pay may not be credited or offset against the time and one-half required by statute for hours over 40 during that week. Both must be paid.

DOUBLE TIME

"Similarly, the double time required for the seventh consecutive day worked in the work-week may not be offset or credited against overtime or premium pay required for any other day or portion of the work-week by the order or existing law. Thus, if in the example above, the employe works an additional or seventh consecutive day in the same work-week, he must receive double time for that day. This double time may not be offset or credited against the holiday premium pay in this example, nor against the time and one-half due for the hours worked in excess of 40 prior to the seventh day."

The only way the company can now contend that one takes care of both is if the holiday falls upon the seventh consecutive day of work according to the interpretations of the order. It is also our contention that the same ruling applies where we have an agreement in existence calilng for over-

(Continued on Page 8)

Notice to All Locals

In the February issue of the Glass Workers edition of the CIO NEWS, I tried to stress the importance of a good labor paper and the things essential to making a good paper. In this issue I wish to stress that this is your paper, you are paying for it out of your own money paid into the union as dues.

Every good paper has a critic. Every paper has a policy and a committee to control the policy as to what is printed in its pages. It is my sincere desire to have each member reading this paper act as if he were on the policy committee and criticize and offer suggestions in a good old union way.

Again I. ask each local to select a reporter to send in news items. This paper is a good medium to exchange views, information and ideas. There are several thousand copies of this issue and other issues to come. The interest of those coming depends upon all of you as union members.

I will pledge to do my part to select and write articles pertaining to unionism and our organization. The Research and Educational Department was established at the Clarksburg convention to further unionism and create a better understanding along definite lines agreeable to the membership and its officers. This can be accomplished in several ways—cooperation is the most important, the others are secondary.

The International Headquarters is located at 118 North Third Street, Columbus, Ohio.

The next issue of the Glass Workers edition will go to press April 12. Please have all news items in by April 5.

LELAND BEARD,
International Vice-President, Director, Research and Educational Dept.

War Deaths One Fifth of Industry's

The nation's industrial fatalities were more than five times fatal casualties suffered by the armed forces during the first 14 months of the war, the National Safety Council announced tonight.

Casualties in the armed forces up to Feb. 7, according to OWI figures, were 10,150 dead.

During the same period 53,000 workers, many of them skilled production workers, were killed and 4,750,000 were injured, on or off the job.

CIO News
March 8, 1943

'EQUAL RIGHTS' BILL WOULD HARM WOMEN

Washington, March 6 -- The so-called women's "equal rights" amendment actually would harm women by destroying many of their hard-won legislative gains, the C.I.O. Congress of Women's Auxiliaries told the Senate Judiciary Committee this week.
A
A statement by Sec.-Treas. Eleanor Fowler said:

"On behalf of the Congress of Women's Auxiliaries of the CIO I waht to register the strongest possible opposition to the so-called equal rights amendment which is pending before your Committee, The amendment would serve as a dangerous instrument to destroy many hard-won rights of women. It is generally agreed that the effect of the 'equal rights' provision would be to abolish those laws which protect the economic, physical and social conditions of women, but do not apply equally to men.

"The amendment would destroy protective industrial legislation and would impose extreme hardships on working women. It would create similar hardships for women in other walks of life. It would undermine laws which relate to widows' pensions, the right of dependent wives and children to support of the husband and father, guardianship and many other rights affecting family relationships.

"The CIO Auxiliaries, together with other labor organizations, have always opposed discrimination against women and have always worked to secure real equality for them. The 'equal rights' amendment is not a shortcut to equality but would create a hundred injustices for every one it abolishes."

EXCERPTS FROM CONGRESSIONAL RECORD - JANUARY 21, 1943 - PAGE 288. Robman

Mr. Barbour - (Speaking to the Equal Rights Amendment measures)

We recognize---that they may enjoy the inalienable right of equal rights with men.

Causes of defeat in 1938--apprehension and fear that the amendment would remove from the statute books in many of the States protective legislation for women in industry that had been passed after many years of strenuous effort.

The resonsibilities placed upon women today--make it imperative that we take cognizance of their rightful place in our scheme of life. "---Today both men and women have equally qualified to work cooperatively, and their joint earnings are needed more and more to lessen the strain of the economic burden imposed by our present social situation. There should be equal opportunity for obtaining knowledge, equality of opportunity for work and service, and equality of remuneration for service rendered.

I know that in many of the States of the Union legislation has been placed upon the statute books which makes this possible." In other States--our legislators have not as yet adopted this progressive viewpoint.

As far as I can see and understand the contex of this amendment, there is no conflict between the amendment which prescribes equal rights to all and a demand for better conditions in industry for both men and women.

If for one moment I thought this amendment would in anyway destroy the advanced social and economic legislation that has been adopted in many States of our Union for the protection of our women, I would most vigorously oppose its passage. But---I do not believe---it will in any way affect such legislation."

The great contribution of our women today--especially in our defense plants and in our armed forces in these hours of baptism by fire - necessitates our giving to the women of this country truly equal apportunities.

Mr. Capper (p. 289)

Let us without delay state clearly in the Constitution---that men and women stand on an equal footing before the law, with justice to each and favors to none.

Mr. Chavez (p. 289)

The---amendment ~~re~~ represents one more step which we must take in establishing justice for all American citizens. Its great significance lies in the fact that it touches intimately the life of every American woman and indeed of every American man.

"---various states have corrected some of the most flagrant abuses. Property rights were conceded slowly, but still imperfectly. Joint guardianship rights were allowed in some States. The right to contract, to sue and be sued, was also granted in some States, although lawyers today still refer to the "danger of a married woman's papers."

But still, there is today no State in the Union where the law applies equally to men and women. Wherever the common law, unmodified by statute exists, there injustice to women exists. The equal rights amendment would end this injustice for the whole country."

Mr. Guffey (p. 289)

"---no citizen of the United States has any just grounds for denying equal justice before the law to the women of this country. Democracy, to be real, can no longer refuse equal legal rights to any citizen. All my life I have opposed special privilege---will gladly support this amendment which will do away with special legal privileges for men in the various States and thus grant all citizens ---men and women alike--equal legal rights throughout the country."

Mr. Nye (p. 289)

It is hardly my purpose to ignore the representation which comes in opposition to the equal rights amendment. I can quite understand and appreciate the sound ground upon which some of this opposition is based, and I expect to witness compromises in legislative consideration which will greatly forward the course of equality.

---I feel strongly that equality of rights before the law should not be denied the women of our country. Thousands of discriminations are practiced against women, and it is our task as legislators to eliminate those discriminations.

Very often so-called protective legislation proves to be an obstacle to women. Hours of employment of women are often discriminatory and stand as a preventive against equal pay for equal service.

Mr. Pepper (for the amendment) p. 289

---Those of us who have advocated by our signatures the equal rights amendment--- advocate an ideal too long delayed, the complete emancipation of women.

They are entitled to enjoy all rights equally with all human beings, and that sex is not a sufficient line of demarcation for different rights. There may be instances where there would be a difference in duties, but that will depend upon the ability of the person or persons affected to perform the obligation required, not to their rights equally to share and to enjoy the benefits which are derived from citizenship and equality due to all.

Mr. Andrews (opposing the amendment) (p. 289)

The term "equal rights" is a very enticing one, but I wonder if those who have made speeches in favor of the amendment have gone to the trouble to discover what the adoption of such an amendment would mean to the Constitutions and the laws of their States.

When the Constitution of the United States was formed, the whole field of domestic relations was reserved to the States. That field includes domestic relations and personal rights. That field was clearly reserved to the States. If this amendment is ratified it is quite certain that married women and widows may lose many more rights than they will gain.

Of course, Senators know that when a man marries, all that he has when he marries and all he thereafter acquires by gift, devise, or otherwise, belongs to both husband and wife.

I realize that the term "equal rights" is very catchy and a pleasing slogan, but I think we had better look into the subject very carefully-- I fear the adoption of the amendment would result in unending litigation in the various States. Divorce laws--might be thrown out of kilter---Under this amendment a man might rightfully claim alimony from his wife. The whole question is so involved that we had better look carefully into it before we take action.

---before submitting this proposal to the States for ratification we should first be sure we understand what its far-reaching effects might be. I shall undertake to prepare a statement on the subject and I hope it will be of some service to us in arriving at a solution of the question.

Nyswander

NATIONAL WAR LABOR BOARD

GENERAL ORDER NO. 16
(Adopted November 24, 1942)

Adjustments which equalize the wage or salary rates paid to females with the rates paid to males for comparable quality and quantity of work on the same or similar operations, and adjustments in accordance with this policy which recognize or are based on differences in quality or quantity of work performed, may be made without approval of the National War Labor Board, provided that:

(1) Such adjustments are reported, when made, to the Division of Review, Analysis and Research of the National War Labor Board together with sufficient information to show that they are in accordance with the policy referred to above;

(2) Such adjustments shall be subject to the Board's ultimate power of review, but any modification or reversal thereof will not be retroactive;

(3) Such adjustments shall not furnish a basis either to increase price ceilings of the commodity or service involved or to resist otherwise justified reductions in such price ceilings.

THE COMMONWEALTH. Journal of the Commonwealth Club of California. San Francisco, California, September 21, 1942. No. 38.

PROBLEMS OF REPLACEMENT

In many instances women have traditionally received less pay than men for certain jobs. When women take over jobs that have always been held by men, there will be great pressure to give them "like pay for like work." Women working for the same employer in other departments will want to take over in higher paid jobs and this will create a problem, particularly for industries whose economics depends on this pay differential, and whose possible income is now limited by ceilings. It is difficult, too, to dermine the difference in cost where four men may be replaced, perhaps, by four women and one man to do the heavy work. Ultimately there will be tremendous pressure to eliminate the differential between men's and women's wages. (page 167)

ADVANCE RELEASE: For MONDAY AFTERNOON Papers, August 24, 1942

OFFICE OF WAR INFORMATION
U. S. DEPARTMENT OF LABOR

Mary Anderson, Director of the Women's Bureau of the U. S. Department of Labor today called the panel recommendation to the National War Labor Board in the General Motors case, requiring the same wage rate for women as men when doing the same work, a victory for women workers and for advocates of fair wage policies.

"This provision is a significant milestone in the Women's Bureau quarter of a century struggle for the principle of equal pay for equal work, and millions of women should profit from it," Miss Anderson declared.

"It is a much-needed safeguard to prevent the undermining effect of wage differentials in the whole wage fabric in this country. At no time can we tolerate a double wage standard -- one set of rates for men and a lower set for women -- and certainly not in the present crucial period, nor in the difficult days following the war.

"In our fight for democracy we can not permit such an undemocratic and unsound method as underpayment of women who take the place on production lines of men called to the front. Nor would it be fair to men on their return from the war to have to compete with lower-paid woman labor.

"Women not only in General Motors plants but in all the establishments -- large and small -- in the industries involved will derive benefits if the panel recommendation is adopted. Also firms in the area competing for woman labor will have to maintain the same wage policies and wage scales in order to secure women as workers.

"The effects will be even more far-reaching. The policy will be pointed to everywhere in the United States as a precedent to be followed, both in the war and the postwar program.

"It will be the most significant step ever taken by the Federal Government to implement the principle that wages should be based on occupation, and to bring women's wages to a par with men's for the same jobs, if the Board adopts the recommendation. It goes farther than the Federal wage-hour law, which forbids sex differentials in the minimum rates set up under its cloak; whereas this recent ruling will bolster women's wages on all levels."

Realizing that few war industry occupations can be considered definitely men's or women's, and that men and women in many plants are working side by side on the same jobs, the Women's Bureau has studied the wage situation in many war plants, including several General Motors plants.

A careful rate and job analysis was made by Bureau experts. Elisabeth Christman, special assistant to Miss Anderson and an authority on collective bargaining techniques, gave particular attention to union grievances due to wage differentials between men and women.

(over)

WOMEN'S BUREAU
U.S. Department of Labor
Washington

COPY OF PORTION OF MEMORANDUM FROM APPRENTICESHIP SECTION, DEPARTMENT OF LABOR

April 14, 1942

To: Field Representatives
From: William F. Patterson
Subject: Training Women for War Production

. . . .Our general policy on labor standards applies alike to men and women. Women should be given the same opportunity for training, upgrading, and advancement as men. The same principles of training and the same procedures for developing training programs apply to men and women . . . .

Wages paid to women should be the same as those paid to men. Lower wages for women undermine the wage structure and disturb working relations.

(See Miss Pidgeon's Apprenticeship file
for copy of memorandum)

WOMEN'S BUREAU
U.S. Department of Labor
Washington

EXCERPTS FROM WEEKLY SUMMARY OF APPRENTICESHIP SECTION ACTIVITIES, WEEK ENDING APRIL 10, 1942

The United Automobile Workers, CIO, held a women's defense conference during March in Detroit. They passed a resolution asking for an extensive training program for women in national defense jobs. They also called for the utilization of idle plants and facilities for training of all workers and the payment of trainees from Federal funds during training. They believe that women with industrial experience should be trained before training inexperienced workers, and asked for equal pay for equal work.

(See Miss Pidgeon's Apprenticeship File for complete report.)

New York Times - 3-26-39

WOMEN'S RIGHTS CHANGE OPPOSED BY THE CITY BAR ASSOCIATION GROUP

Committee Reports Fixing of Status Is Problem for States -- Confusion is Seen In Voting Federal Amendment

The Committee on Federal Legislation of the Association of the Bar of the City of New York, in a report made public yesterday, coincident with its submission to the judiciary committees of the Senate and House of Representatives, disapproves of the proposed amendment to the Federal Constitution guaranteeing equal rights for women. The bar committee holds that this matter is one for State action and not properly a subject of change in the Federal Constitution.

Pointing out that the National Woman's Party supports the amendment while the League of Woman Voters is opposed, the committee said that "this difference in viewpoint reflects a broad cleavage of policy between substantial groups of women", and added that "in this report it is not necessary to take sides concerning the wisdom of removing distinctions which some women wish to preserve, but merely to point out that the subject is one appropriate for action in the various States, rather than for the Federal Constitution."

The report declares that the chief point of differences between the two groups of women is their attitude toward industrial legislation for the protection of women; one group holding that such legislation is a restriction and the other that such legislation represents an advance which should not be lost.

"No sound reason appears for requiring uniformity in State legislation on such subjects," the report says. The committee points out widespread conflicts in existing law which would result from adoption of such an amendment, and adds:

"If the proposed equal rights amendment were adopted, the interpretation of State laws in the light of the equal rights amendment would immediately become a Federal question cognizable in the Federal courts. From the point of view of the administration of those courts, it is not desirable to add to their burden the vast field of inquiry which this amendment would upen up, including the common law as well as the statutory law of all of the States.

"Moreover, the power of Congress to legislate on the subject of equal rights grants indeterminate powers to inject Federal legislation into a State's own law on any subject in which the rights of men and women are involved -- a very broad field.

The prudent course would seem to be to continue attacking specific objectionable statutes, rather than resort to a blanket amendment which would intrude the Federal constitution into matters which are properly of State concern.

pp 2+4

78th Congress } HOUSE OF REPRESENTATIVES { Document
2d Session } { No. 413

SUPPLEMENTAL ESTIMATE OF APPROPRIATION FOR THE FEDERAL WORKS AGENCY

COMMUNICATION

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

SUPPLEMENTAL ESTIMATE OF APPROPRIATION FOR THE FEDERAL WORKS AGENCY FOR THE FISCAL YEAR 1944, IN THE AMOUNT OF $150,000,000.

February 10, 1944.—Referred to the Committee on Appropriations and ordered to be printed

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The White House,
Washington, February 10, 1944.

The Speaker of the House of Representatives.

Sir: I have the honor to transmit herewith for the consideration of the Congress a supplemental estimate of appropriation for the Federal Works Agency for the fiscal year 1944, in the amount of $150,000,000.

The purpose of this estimate is to provide additional funds to the Federal Works Agency within the total limitation of $500,000,000 authorized for the community facilities program by the act of October 14, 1940, as amended.

Under the act, the Federal Works Agency extends assistance to those communities which have experienced an abnormal growth in population because of war-connected activities and lack financial assets to provide the needed facilities and services without supplementary help from the Federal Government. This program has made a substantial contribution to the war through providing needed public works, such as schools, hospitals, water and sewer systems, recreational buildings, and other structures. Material assistance also has been granted local communities through the allocation of funds for the operation and maintenance of essential services, among which are educational, health, and child-care facilities.

On November 5, 1943, I transmitted to the Congress an estimate of $50,000,000 to provide the Federal Works Agency with funds to meet additional construction requirements and to assist local communities in financing service projects. That amount was considered essential to meet the then pressing needs of the Federal Works Agency for construction and service projects. The First Supplemental National Defense Appropriation Act, fiscal year 1944, failed to carry any additional funds for the community facilities program. The Federal Works Agency is, therefore, in the position of having a number of construction projects for which the need has been determined by law but that need cannot be met because of lack of funds. Moreover, it has been necessary to withdraw funds previously allotted for some service projects so that needed assistance could be provided in other communities.

In addition to the approved projects, the Federal Works Agency has in hand a number of applications for both types of projects—construction and services—and sufficient studies have been made to indicate that the facility or service is essential to the continued success of the war program.

I desire particularly to call your attention to the facilities referred to in the attached letter from the Director of the Budget, made necessary by the need to employ more women in war industries and to keep them on the job with a minimum of absenteeism and turn-over. Many of them in addition to their duties as industrial workers must carry the burdens of child care, housekeeping, home management, and shopping for the daily needs of their families. A part of the funds herein requested are to provide child-care centers and other facilities—so-called out-plant facilities—to make the jobs of these women war workers easier and to encourage them to stay at work turning out the weapons of war. Failure to provide them has been an important factor in causing many women to leave their jobs temporarily or permanently, and has resulted of course in reduced production of the weapons of war.

Needless to say, the Federal Government should not undertake any out-plant facilities unless and until the local community and local private enterprise have found that they cannot solve the problem by themselves. All Government agencies will continue their efforts to enable private enterprise itself to meet the need as they have in the past, as outlined in the attached estimate from the Director of the Budget.

If war production is to continue at satisfactory speed, community facilities and services should be provided and continued. In this connection it should be pointed out that as the construction portion of the community facilities program declines there will be a progressive increase in the need for assistance in the maintenance and operation of facilities already provided. The act of July 15, 1943, places a limitation of $40,000,000 upon the amount that may be expended after July 1, 1943, for allotment to public or private agencies for the operation and maintenance of facilities or services. The requirements now known and those forecast for the future indicate that the existing limit of cost will require the suspension of some of these services at a time when we can ill afford to disrupt our industrial production. Withdrawal of these services cannot help but increase the problem of absenteeism in industrial plants.

I recommend the early appropriation of the remaining $150,000,000 heretofore authorized by the Congress for the completion of the community-facilities program and the waiver of the limitation on the amount that may be used for service projects.

Respectfully,

FRANKLIN D. ROOSEVELT.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., February 9, 1944.

The PRESIDENT,
The White House.

SIR: I have the honor to submit herewith for your consideration an estimate of appropriation for the fiscal year 1944 in the amount of $150,000,000, for the Federal Works Agency, as follows:

FEDERAL WORKS AGENCY

OFFICE OF THE ADMINISTRATOR

War public works (community facilities): For an additional amount to enable the Federal Works Administrator to carry out the functions vested in him by titles II and III of the act of October 14, 1940, as amended (42 U. S. C. 1531–1534 and 1541), $150,000,000, to remain available during the continuance of the unlimited national emergency declared by the President on May 27, 1941, of which amount not to exceed $6,750,000 shall be available for administrative expenses, including the objects specified under the head "Defense public works (community facilities)" in the Second Deficiency Appropriation Act, 1941, and the Joint Resolution approved December 23, 1941 (Public Law 371): *Provided,* That the funds herein and heretofore appropriated to the Federal Works Agency for community facilities may be allocated for contributions to public and private agencies for the maintenance and operation of public works without regard to the limitation contained in the act of July 15, 1943 (Public Law 150) $150, 000, 000

The act of October 14, 1940, as amended, authorized a total of $500,000,000 under title II for a substantial program of public works construction and public services in communities experiencing an abnormal growth of population because of war-connected activities and lacking financial means to provide the needed facilities and services essential to health, well-being, and orderly community life. Since these extraordinary problems had been occasioned by the exigencies of war, it was proper that Federal aid be provided in meeting these abnormal conditions.

Of the original authorization of $500,000,000 for this program $350,000,000 has been appropriated and allocated. Many construction projects, consisting of schools, hospitals, waterworks, streets and highways, sewer systems, and recreational and other facilities, have been completed and are now in use. Other projects are in various stages of completion. The Federal Works Agency now has under consideration applications for a group of construction projects, the need for which has been reasonably demonstrated and which, if not completed, will impair the ability of many communities to make their maximum contribution to the war program.

In addition to this extensive construction program, contributions have been made for operation and maintenance of many activities, such as schools, hospitals, recreational facilities, and child-care centers.

There is a continuing and growing need for the development and maintenance of child-care projects and other facilities because of the necessity of employing more women and keeping them on the job to take the places of men in war plants. Since the outbreak of hostilities the employment of women in all industries has increased by more than 4,000,000, and further increase may be expected in the next few months. Many of these women workers are the mothers of young children and in addition to their responsibilities as industrial workers they must carry the burdens of child care, housekeeping, home management, and shopping for the daily family needs. In many instances it has been impossible to find adequate accommodations for taking care of children during the hours of employment.

One of the more important contributions in this respect has been in connection with nursery schools and child-care centers where children of women war workers may be cared for during the hours of employment. In January 1944 there were 2,133 such centers for children with an enrollment of 59,832. This is an increase in enrollment of 113 percent during the preceding 6 months. While the Federal Government assists in constructing and financing the operation of these child-care facilities, it does not operate them. This function is carried out generally by local public bodies, usually the local school system. The cost of operation and supervision above what the State and local government contribute is borne by the Federal Government. The Federal Works Agency has nearly exhausted its means for further assisting in the financing of these facilities and unless additional funds are provided many such facilities undoubtedly will be closed because of the inability of local communities to meet the full cost, with the result that many women workers will be compelled to leave industry so that they may devote full time to their homes and children.

Another factor contributing much to absenteeism in war plants is the lack of stores, shops, restaurants, and other "out-plant facilities," or the inability to make provision for keeping such facilities open to accommodate particularly the women workers in war plants. The rapid increase in population in some areas has proven too much of a burden for existing facilities and services such as stores, shops, and restaurants. Frequently the neighborhood stores and shops have little left on their shelves at the end of the day, or the hours of business are such that the workers are unable to do necessary shopping or to transact normal business.

Much has been accomplished in many areas to increase the facilities and services needed for war workers. Joint action has been taken by local communities of citizens and by local representatives of Federal agencies. Merchants have been persuaded in some instances to change their business hours and to see that some supplies are reserved for war workers. Additional supplies of food and other consumer goods have been sent to areas where the influx of workers has resulted in shortages. Special arrangements have been made to provide labor necessary to maintain locally needed services.

These and other cooperative arrangements have, in many areas, alleviated some of the difficulties and they should be continued wherever necessary.

While a great deal has been done to relieve the unsatisfactory conditions in many areas, it has not been possible in all cases, where populations have suddenly increased by tens or even hundreds of thousands, to make adjustments in hours and deliveries, or to expand existing facilities. It is probable that some supplementary facilities should be provided under the community facilities program if war production is to move at full speed and absenteeism is to be reduced to the minimum. They would have to be constructed by the Federal Government, but of course should be limited only to those critical overcrowded areas in which continued or increased war production is contemplated but where the local community and private enterprise have found that they cannot solve the problems themselves. Needless to say, such facilities would be operated by private enterprise and not by the Government. Each local situation must be considered separately, and private resources should be used to the utmost.

The act of July 15, 1943 (Public Law 150), imposed a limitation of $40,000,000 upon the amount that could be allocated after July 1, 1943, for contributions to public or private agencies for the maintenance and operation of public works. If this limitation remains effective one of the main purposes of the act authorizing the community facilities program will be defeated. The end result would be the curtailment of essential services which would increase absenteeism and seriously impair the war production program. This limitation should therefore be removed.

It is believed that if the $150,000,000 remaining of the congressional authorization for the community facilities program is provided, that amount will be sufficient for its completion, and I recommend approval of this estimate.

Very respectfully,

HAROLD D. SMITH,
Director of the Bureau of the Budget.

Films

NATIONAL ASSOCIATION OF MANUFACTURERS
FOURTEEN WEST FORTY NINTH STREET • NEW YORK 20, N. Y.

WOMEN'S BUREAU
DEC 2 - 1944
DEPARTMENT OF LABOR

November 29, 1944

Miss Mary Anderson, Dir.
U. S. Dept. of Labor
Women's Bureau
Washington, D. C.

Dear Miss Anderson:

Recently I had the pleasure of seeing a preview of a most entertaining motion picture entitled "THREE TO BE SERVED". At its world premier in Hollywood this 27 minute "featurette" was received enthusiastically and it has since been recommended to all Americans by outstanding leaders of both the screen and business worlds as unusual and important.

"THREE TO BE SERVED" tells a simple human story explaining the principles that have made America prosperous and which is certain to stimulate constructive thinking on the problems of the postwar period.

Because it has been acclaimed as one of the most important educational films of the year, I am sure you will want to include a "THREE TO BE SERVED" meeting on your club schedule during the next few months.

The enclosed folder tells how you may arrange any one of several different and most stimulating meeting programs, using the picture as the basis of such a meeting.

In order that you may be certain to have a print of this film made available to you at the proper time, I suggest you return the enclosed reservation card to us as quickly as possible, indicating the preferred showing dates. You will be notified promptly of the definite date when you may count on having this film forwarded to you.

Sincerely yours

Fred Bohen

Fred Bohen, Chairman
Committee on Home and Industry

FB:GN-2
Enclosures

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Motion Picture Editor,
THE NATIONAL INDUSTRIAL INFORMATION COMMITTEE,
444 Madison Avenue,
New York 22, New York.

GN2 **Room 307**

Date..

Please reserve a print of "THREE TO BE SERVED" for

Organization..

Address to which
film is to be sent..

....
(Postal Zone)

Estimated Number
in audience...

Preferred showing date

....	....	....
First Choice	Second Choice	Third Choice

Signature...

....
(Title in Organization)

WOMEN'S BUREAU.
DEC 2 1944
DEPARTMENT OF LABOR

The CLUB PROGRAM YOU'VE BEEN LOOKING FOR!

3 PROGRAMS

Presenting the Motion Picture Featurette

THREE to be SERVED

HOW TO ARRANGE THE SHOWING OF

THREE to be SERVED

You can show this film to your group by arrangement with the National Industrial Information Committee. *There is no charge for the loan of the film!*

ALL YOU NEED IS:

(1) The film of "THREE TO BE SERVED";
(2) A *16 mm. sound* projector complete with loud-speaker;
(3) A screen of suitable size for your audience;
(4) An experienced operator who is familiar with the equipment.

To secure the film, fill out and return the enclosed reservation card. The film will be forwarded to you *postage prepaid.* You pay *only* the postage to return it to us.

Our requirements are simple. We ask first, that the film be mailed or expressed back to us within 48 hours after your meeting; and second, that you inform us of the size of your audience and the general reaction.

In addition to the film, you will need a 16 mm. sound projector and a trained operator to run it. There are several sources from which you may obtain both the machine and the operator. First, you might borrow a projector from a member or a friend who would also operate it for you. If you have funds in your organization treasury to pay a small charge you may rent a projector from a local film library or projection service. These you will find listed in the classified section of your telephone directory under "Motion Picture Projection Service." Perhaps a camera store would rent you a projector, or you may be able to borrow one from an industrial organization. Many business concerns use sound motion pictures to train their sales organizations and if you explain how you plan to use the projector you will often find them sympathetic to your purpose and willing to cooperate with you.

Some motion picture clubs and amateur photographers have projectors and would willingly put on the show for your organization, or you may be able to borrow a machine from your local board of education, the library, the "Y", the Defense Council, or the C.D.V.O. Churches, clubs, and universities are also good prospects as are the public utility companies, the larger banks, and civic organizations of many kinds.

If you encounter difficulty in obtaining a projector for your regular meeting place through these channels, you might arrange with the school authorities to hold the showing in a school building. Even though you have to go to a little trouble to get a projector, the "THREE TO BE SERVED" program is well worth it!

If you cannot obtain the projector from any of these sources, write to our Motion Picture Editor for information. Of course, we cannot *guarantee* to locate one for you in view of their wide use in the war, but we will do our best to help you.

Do not attempt to use a silent projector — it will ruin the film — and do not trust the operation of the machine to an inexperienced person.

Fill out and return the enclosed reservation card. Please give all the information requested including an alternate showing date. You will receive a prompt acknowledgment of the booking together with the discussion booklet and suggested plan for the meeting.

Motion Picture Editor
National Industrial Information Committee
444 Madison Avenue
New York 22, N. Y.

Program

1

Your Regular Meeting

1. Added Attraction, "Three to be Served"

2. Informal Discussion led by Club President

"THREE TO BE SERVED" is another story of youngsters as good as any Twain or Tarkington story! Our hero "Bill" shows he can tackle a problem in economic life as well as he can an opponent in a football game — and after you have met him in this film, you will be eager to carry the ball for

him. This story
own childhood
you look more
their life ahead
tainment to giv
from your prob

Program

2

Postwar Planning in Our Town

1. "Three to be Served"

2. A talk by a Local Civic Leader

3. A Symposium

This is a topic which interests every American and which is vital at the present time. Women are particularly eager for information about the kind of life they'll lead in their own communities after the war. Will every woman's husband and sons have an opportunity for a job? Not just some kind of "made work," but a chance to express the very best that is in him!

You will touch off this spark of interest in every woman in your group if you invite one of the lead-

ers in your tov
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Write to the H
National Asso
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that your spe

Program

3

Small Business After the War

1. "Three to be Served"

2. A talk by a Local Business Leader

3. Special Feature: A self-analysis quiz

Of approximately three million separate business establishments in the United States, there are about two million which employ fewer than one hundred workers each. About half of all Americans who are in business have a very personal interest in "small business."

If your group includes business or professional women, or the wives of businessmen, they would probably find it intensely interesting to hear one of the business or civic leaders speak on the pros-

pects for sma
The Home an
Association o
ply you with
challenging
tudes for eac
many copies
nomics" is a
each member
nomic Person

ory will bring back the days of your
od—but more than that, it will make
ore closely at your own children, at
ead as well as your own. Here is enter-
give you a "lift"—not just an escape
roblems, but a stimulus to solve them.

town's postwar planning group to pre-
E TO BE SERVED" with the program
f your club, then plan to have him give
twenty minute talk after the film is
final third of the meeting may be de-
open forum of questions from the floor.
Home and Industry Committee of the
sociation of Manufacturers for a "Dis-
de" and a list of provocative questions
peaker should be prepared to answer.

all business after the war.
nd Industry Committee of the National
of Manufacturers will be glad to sup-
n a special feature for this meeting — a
self-analysis quiz on economic atti-
ch member of the group. Request as
es as you need. "Your Angle on Eco-
a private, personal quiz that will give
er of the audience the key to her "Eco-
nality."

FACTS ABOUT

THREE to be SERVED

Produced by . . . . Paramount Pictures Inc. — Educational Films Division

Sponsored by . . . . The National Industrial Information Committee of the National Association of Manufacturers

Subject . . . . Our "Economic Triangle"

Running time . . . . 27 minutes

Cost . . . . No charge *except* return postage!

Cast includes...

WILLARD ROBERTSON
who has proved it's possible to be a success in a number of different fields — he has been a lawyer, playwright, novelist (author of the best-seller "Oasis"), producer, and director, as well as actor in more than 150 motion pictures. You'll enjoy his warm, sympathetic role as Mr. Stevens.

MARY VALLEE
in her leading role as the "girl next-door" reveals herself as a pleasing young "starlet" with a big future. The critics acclaim her performance in "THREE TO BE SERVED," her first screen appearance.

BOBBY SCOTT
is a likeable youngster with lots of talent, who despite his youth has already appeared in 75 major screen productions, as well as radio and stage plays. He makes Bill Miller a real-life character, one you'll remember.

EDYTHE ELLIOTT
(Mrs. Wilkinson) has been a favorite of stage and screen since the age of five when she toured America and Hawaii with her father in vaudeville. At present she is one of Hollywood's most popular featured players.

MARY McLEOD
was a Canadian school teacher who left her classes for Hollywood roles. Signed up immediately by one of the leading studios, she has played two leading roles as well as a number of smaller parts.

also

JIMMY CLARK
DONALD DAVIS
BILL HALL
HARRY HARVEY
RUTH LEE
ROGER McGEE
EVA NOVAK
RUTH WARREN
AL WOODS

and a cast of fifty

16 MM SOUND FILMS OF BRITAIN AND THE WORLD AT WAR

Published by the British Information Services, an Agency of the British Government

ACT AND FACT SERIES

D-DAY—*1 reel, 11 min.*

Filmed under fire by Army Film Units and official Newsreel Cameramen, D-DAY tells the full true story of the Allied invasion of Normandy. Allied air and naval power "soften up" the enemy-occupied coast: the convoys en route to France: British and Americans land and establish the beachheads.

Commentary by CLYDE KITTEL, NBC announcer.

CHERBOURG—*1 reel, 11 min.*

Thrilling action films, together with Clyde Kittel's vigorous commentary, bring a vivid account of the whole campaign from the establishment of the Normandy beachheads to the liberation of Cherbourg.

LATEST SOUND FILMS OF GENERAL INTEREST

PARTNERS IN PRODUCTION—*3 reels, 28 minutes.*

(Made in Britain by the National Film Board of Canada)

Using a problem of reorganization at a north country coal mine as an example, this film outlines the story of the Joint Production Committees in Britain. An authentic picture of Labor and Management in collaboration, and a striking picture of democracy at work.

ABCA—*2 reels, 16 min.*

To combat rumors and to meet the crying need for facts, ABCA (Army Bureau of Current Affairs) was started. This free discussion of all topics has since become part of every British soldier's training. The film records ABCA's beginning, shows some of the weekly meetings in full swing and the training which is given to the officers who conduct the discussion groups.

THESE ARE THE MEN—*1 reel, 12 min.*

The Nazi leaders are made to speak their own denunciation. Hitler, Goebbels, Goering, and Hess are seen in typical poses. A narrator's voice recalls incidents of their barbaric careers. A voice representing the peoples of the world, promises punishment of them all. The free verse commentary is by Dylan Thomas, Welsh poet.

DESERT VICTORY—*6 reels, 62 min.*

The story of General Montgomery's smashing victory at El Alamein and his army's triumphant advance across the desert to Tripoli. Produced by soldier cameramen who fought and marched with the British Army on the 1300 mile trek across the Western Desert. Four members of the film unit were killed, seven were wounded and six were captured by the enemy. The uncut version of the film won the Academy Award for the best documentary of the year.

From "IN THE DRINK"

From "PARTNERS IN PRODUCTION"

Suggestions to

Please give alternati

★ ★

If you book films for a high school, tr
arranging for the service clubs of your
as you use them at school.

★ ★

Please help to save our time and your
on one application.

★ ★

Special lists on Industrial Britain, Unit
and Gardening, Health and Medicine,
and Rationing — Available on applica

★ ★

New catalog

SERVIC

All films (except "Desert Victory") are
for one reel and 25c for each additional
portation. Films are shipped C.O.D.

WAR SP

Naples is a Battlefield—*1 ree*

How the Allies undertook the tremen
starving people of a city ruthlessly sh
disease.
The rehabilitation of this, the first b
vealed the magnitude of the job.

The Liberation of Rome—*2 re*

The fight to free Rome was a long an
and the terrain difficult. This film tells
Italian Campaign and explains the di
fell and the road to Rome was opened
retreat from Rome and the Allies' ent

Produced by the U. S. Army Sp
be shown to U. S. soldiers as par

KNOW YOUR ALLY BRITA

Explains the British character and sty
soldier what he may expect to find in
ing comparisons are drawn between
their speech, their customs and their
be astonishingly alike in their basic be
Lease, and other controversial subjects

BATTLE OF BRITAIN—

Tells of the Luftwaffe's all out attack
so many owe so much" beat it back.
fights and the "great fire blitz" on Lon
ing scenes.

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ti dates and titles.

★ ★

tr to get full use out of the prints by
r city to see the films on the same day

★ ★

r by booking a series of programmes

★ ★

ited Nations, Civilian Defense, Farming
e, Pre-War Britain, Science, Nutrition
cation.

★ ★

g now ready.

CE FEES

re available for service fees of 50 cents
al reel in the same shipment, plus trans-

PECIALS

eel, 11 minutes.

endous task of bringing new life to the
shattered by the Nazis, and ravaged by

big European city to be liberated, re-

reels, 20 minutes.

nd hard one. The enemy was powerful
lls briefly the story of the nature of the
difficulties encountered before Cassino
ed up. There are scenes of the German
ntry into that city.

Special Services and designed to
art of their orientation program.

AIN–*5 reels, 42 min.*

style of living, and shows the American
n England and why it is that way. Amus-
n British and Americans. Different in
r sports, the two peoples are shown to
beliefs. India, the British Empire, Lend-
ts are discussed with complete frankness.

–*6 reels, 53 min.*

k on Britain and how the "few to whom
k. Day and night bombings, aerial dog
ondon are only a few of the many thrill-

BRITISH COMMONWEALTH SERIES

SOUTH AFRICA–*1 reel, 14 min.*

The film outlines the life of the country showing how it is a land of contrasts in farming, living, worshipping, trading and in transport. It tells how South Africa made her own decision to enter the war and shows the steps she took to back her decision.

NEW ZEALAND–*2 reels, 15 min.*

Describes the two peoples of New Zealand — the Maoris, who first discovered the twin islands, and the Whites, or Pakehas as the Maoris call them, who arrived there only one hundred years ago. It tells how complete unity between the races was obtained and how New Zealand's famous progressive legislation was developed. The film also shows how the country's great natural resources — coal, iron ore, timber, etc. — and its huge production of flax, butter, cheese, meat and wool have been turned to the war needs of the United Nations.

ALL SUBJECTS AVAILABLE IN 16MM SOUND

WORLD OF PLENTY–*5 reels, 45 min.*

[Listed as a 'Film of Merit' by the Educational Film Library Association.] **Written by the late Eric Knight and produced by Paul Rotha, this film is about food; — its production, uneven distribution and waste in peacetime, the control made necessary by the war and the necessity for world planning after the war. Picture, diagram and argument all contribute to the theme. Narrators, English and American, swing the argument across continents, ask and answer questions as they go. An impressive band of experts on all subjects connected with food is called in during the course of the film to give evidence and advice on the many problems raised.**

"Amusing, honest, exciting, intelligent, understandable." Time Magazine.

IN THE DRINK–*1 reel, 12 min.*

Describes the ingenious emergency equipment which is packed in the collapsible dinghies carried by all British bomber aircraft. Shows what happens from the time the bomber hits the sea until the crew is picked up by the Air Rescue Service.

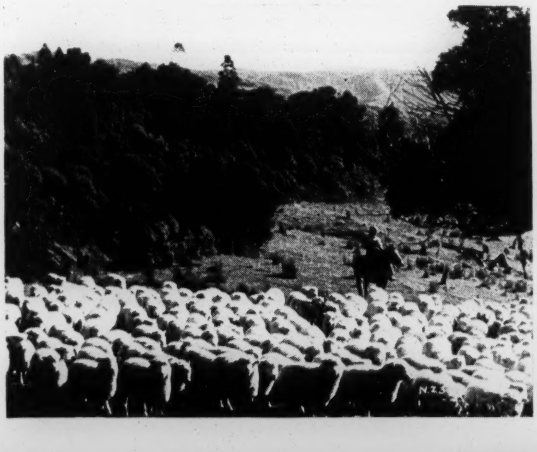
COASTAL COMMAND–*6 reels, 60 min.*

The hunting down and destruction of a German Raider in a fight comparable to the sinking of the Bismarck. The hero is a Sunderland Flying Boat which patrols the Atlantic to protect the convoys, and the cast includes Beauforts, Hudsons, Catlinas, Junker 88s and Messerschmitts. The film, released theatrically by RKO, was made with the cooperation of the Admiralty and Air Ministry.

AIR OPERATIONS–*2 reels, 22 min.*

This is a short version of the now famous film TARGET FOR TONIGHT (still available) which showed the preparation for an attack by an RAF bomber squadron on an enemy objective, the attack and the hair breadth escape return to England.

From "NEW ZEALAND"



From "COASTAL COMMAND"

News of the Latest
16mm British War Films

WOMEN'S BUREAU
OCT 1 3 1944
DEPARTMENT OF LABOR

Miss Frieda Miller
Women's Bureau
Department of Labor
14th & Constitution Ave., N.W.
Washington, D. C.

WASHINGTON, D.C. 18 1944
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These films may be obtained from:

For: District of Columbia, North Carolina, Virginia, West Virginia

British Information Services
1336 New York Avenue, NW
Washington 5, D. C.

For: Maryland

British Consulate
305 Gillet Building
Light and Redwood Streets
Baltimore 1, Maryland

PLEASE WRITE TO THE OFFICE IN THE AREA IN WHICH YOU ARE LOCATED.

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1944

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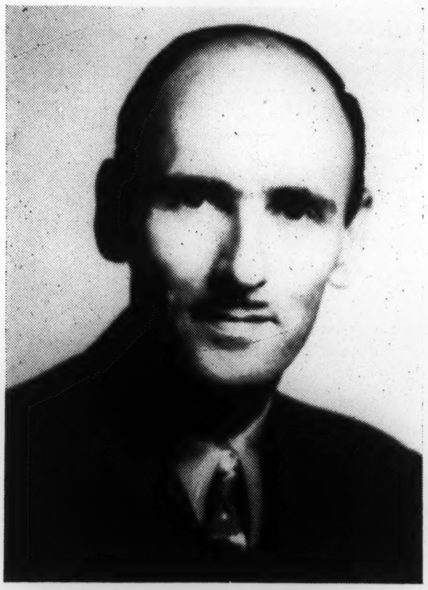

HOWARD SMITH
West Coast District Manager

LOS ANGELES PORTLAND
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CORRECTION !

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The RELIGIOUS SUBJECTS

LISTED ON

PAGES 85 - 86 - 87

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Be sure to specify playdates accurately. Give a long list of selections when it is at all possible. **At least five. Ten much better. State whether we may substitute a similar subject in case those you order are not available.**

The exhibitor pays transportation on rental subjects both ways, and must return programs promptly by first train after showing.

All rental subjects will be shipped C. O. D. unless paid for before shipping time. **An exception to this is made in the case of accredited institutions who apply for a monthly settlement plan.**

Customer must take care of our films when in his possession, and particularly so in using **Talking Pictures.**

Customers will be billed for all film damaged by them at laboratory replacement cost.

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4. Catalogue of

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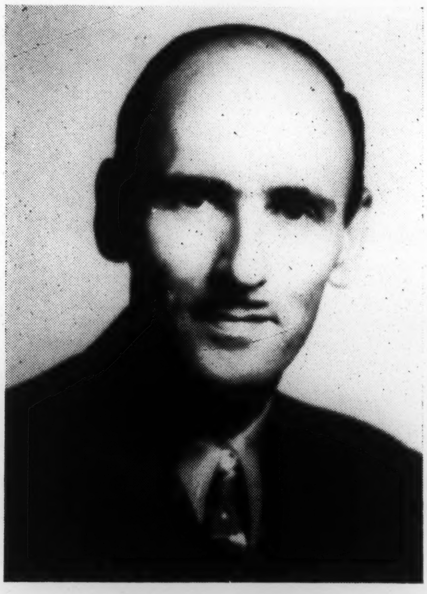

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BERTRAM WILLOUGHBY, President

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16 M.M. SILENT
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We are in a position to repair projectors of all makes.

Send to OUR CHICAGO OFFICE your SICK PROJECTORS, Express Charges Prepaid, and we will repair same at a moderate price and return same to you . . . Estimates Freely Given.

CARE OF SOUND FILM AND SOUND PROJECTOR

Pay Strict Attention

1. **ONLY A PERSON** experienced in motion picture projection should be allowed to operate your projector.
2. **DO NOT** attempt to run sound films on a silent projector—to do so will totally destroy the film. (Sound films are easily identified, as there are sprocket holes on one side of the film only.
3. Keep sprockets, gate, sound head and sound slot FREE FROM DUST AND DIRT at all times. Accumulated dirt will scratch the film. Inspect and clean before putting on each reel. CLEANLINESS IS ESSENTIAL TO GOOD SOUND PROJECTION AND THE PREVENTION OF FILM DAMAGE.
4. After threading the film into the projector (according to your projector manual), DO NOT START THE MOTOR until you have first turned the mechanism over by hand to be sure that the perforations are properly engaged on the sprockets. Be especially careful of the last or take-up sprocket to see that the TENSION IS NOT TOO GREAT, because, if it is, the film sprocket holes will become pulled, and any evidence of this fault will not appear on the screen.
5. During projection, be sure to occasionally "FEEL" the film between the last sprocket and take-up spool to see if the film is running through properly, and no damage is being done to the film sprocket holes.
6. **DO NOT REWIND FILMS** after showing—to do so necessitates double rewinding at our exchange.
7. **RETURN FILMS IMMEDIATELY** after the last scheduled showing—never hold films for any reason without permission from us. You will be charged for any delay. Express or parcel post shipments should be insured at the rate of $20.00 for each 400-foot reel and a permanent file kept of receipts.

NOTE! You can not obtain a New Projector during the duration. **Make yours last.** Send for Free Illustrated Circular on **Care of Projector.**

TERRITORIAL RESTRICTIONS

On practically all our pictures, we have no territorial restrictions. However, on our exclusive new Monograms, our territory is restricted to the following States:

Oregon
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New Mexico
Southwestern South Dakota
Wisconsin
Missouri
Washington
Utah
Texas
Michigan
Kansas
California
Colorado
Arizona
Western half of Kentucky
Indiana
Iowa
Montana
Wyoming
Nevada
Illinois
Nebraska

Book these pictures only through our Chicago, Dallas, Los Angeles, Portland and Denver offices. These restricted pictures are indicated in the catalogue by the letters "LT".

RENTAL RATES ON 16MM TALKING PICTURES

After each feature listed, we indicate the daily rental rate of a complete 9-reel program (approximately 1½ hours' running time) composed of that particular feature, and enough short subjects to make the program of the desired length. REMEMBER! THIS QUOTATION IS FOR A COMPLETE PROGRAM, AND NOT THE FEATURE ONLY. In most cases, if the feature only is desired, a reduction will be made in the quoted price. We quote a rental price on a spot booking basis, and a series basis. The spot booking basis will prevail to customers who rent isolated programs. The series price will prevail to those who book (6) six or more programs, to be used within a period of a year.

SELECT YOUR OWN SHORTS

On all programs, except Series "A" and Series "B", the exhibitor is allowed to select his own short subjects. He may also include serial episodes, without any extra charge, as short subjects. On Series "A" and Series "B" programs, serial episodes are NOT included, nor can the exhibitor select his own shorts on these two series. These are all UNIT programs, and the shorts are always attached to the feature.

SAVE MONEY—GET BETTER SERVICE

Our regular exhibitors save money and get better service by booking on a "Volume Basis." On this basis, on a minimum rental of either 40 reels of shorts or at least (6) six complete programs, booked as needed within twelve months from date of first rental, they enjoy the following savings:

1—Short Subjects Only: Educational or Recreational One or Two Reelers in black and white, including serial episodes, $1.00 per reel on the 40-reel basis.

2—Feature Programs: To those who book six or more complete programs, a reduction on each feature program of $2.50 is made, on all programs listing from $10.00 up. On the $9.00 and $7.50 programs, the reduction is $1.50 per program when six or more are booked. There is no reduction on Series "A" and Series "B" programs.

THIS REDUCTION ON SERIES BOOKINGS IS MADE ON THE ONE-DAY RENTAL PRICE ONLY, AND DOES NOT APPLY TO THE MULTIPLE DAY RATES.

Our WEEKLY RATES are as low as good business will allow, and no reduction is made on the weekly rental price on the basis of "volume business."

MULTIPLE DAY COMPLETE PROGRAM SCHEDULE

●

After each feature in the catalogue, you will find a "code" letter. The following table indicates the complete price schedule for one and multiple days use of all programs. The key to the table is a comparison of the code letter in the schedule with the code letter after each feature.

CODE	One Day	One Day Series	2-3 Days	4-5 Days	6-7 Days	Two Weeks	One Month
B	$ 4.00	No Series	$ 4.50	$ 4.50	$ 5.00	$ 7.50	$ 10.00
A	6.00	No Series	7.00	7.00	7.50	12.50	15.00
C	7.50	$ 6.00	8.50	9.50	10.00	17.50	30.00
L	9.00	7.50	10.00	11.50	12.50	22.50	40.00
M	10.00	7.50	12.00	12.50	15.00	27.50	45.00
N	12.50	10.00	14.50	16.50	17.50	32.50	50.00
PR	12.50	10.00	15.00	17.50	20.00	35.00	60.00
K	15.00	12.50	17.00	19.00	20.00	35.00	60.00
R & HR	17.50	15.00	20.00	22.50	30.00	55.00	100.00
S	20.00	17.50	25.00	30.00	35.00	65.00	125.00

U ....The one day rate applies per location regardless of number of days used. If six or more programs are booked then series price is allowed.

●

U ▼ ....Universals marked thus (▼) may be rented as follows:

Two (2) day rate................1½ times the daily rate
Three (3) day rate ....2 times the daily rate
Weekly rate ....2½ times the daily rate

●

Note: The SERIES RATE may be used in computing the above when six (6) or more programs are booked in advance.

ONE DAY RENTAL RATES SPECIAL TO SCHOOLS ONLY

Your enrollment determines your rental on most of the complete programs as follows:

Enrollment	On $20.00 Programs	On $17.50 Programs	On $15.00 Programs
Under 250	$12.50	$12.50	$12.50
251-500	15.00	15.00	15.00
501-750	17.50	17.50	15.00
Over 750	20.00	17.50	15.00

The enrollment form must be signed by School Supt. — Principal or Teacher.

When 6 (six) or more programs are booked at one time an additional discount of $2.50 per program applies. This is known as the series discount.

The small school pays only $10.00 per day for the best programs.

On the few programs on which our contract with producers requires that we maintain a standard rental price for *all schools,* regardless of enrollment, we can still give schools the $2.50 discount per programs when six or more are booked at the same time.

These rental rates are for complete programs, When the feature is less than 9 reels in length, enough short subjects of your own selection will be added to make the program at least 9 reels in length, which means an approximate running time of one and a half hours.

(Cut on Dotted Line, Fill Out, and Return To Us.)

IDEAL PICTURES CORP.
28th E. 8th St., Chicago 5, Ill.

Name of School______________________________

Address ______________________________

City ____________________ **State** __________
(Please give ZONE NUMBER for our files)

Name of Individual______________________________

Position held ______________________________

Enrollment for entire school______________________________

POSTERS AND OTHER ADVERTISING MATERIALS

We operate a complete poster exchange, and can supply advertising on practically all subjects, on the following basis:

You make a deposit on all advertising, as follows:—

Charges

1 — sheets	25 cts. each
Set of 11 x 14 Photos	60 cts.
8 x 10 stills	10 cts.
22 x 28 stills	40 cts.
14 x 36 stills	30 cts.
Window Cards	10 cts. each

On the return of the advertising, in good condition, you will be credited as follows:

Credits

1 — sheets	15 cts. each
Set of 11 x 14 photos	25 cts.
8 x 10 stills	3 cts.
22 x 28 stills	20 cts.
14 x 36 stills	15 cts.

In order to receive the above credits, please return your used material every two weeks.

TRAILERS

We rent trailers on practically all our features, and serials, at 50 cts. each.

We will supply advertising on the above basis to all, whether our customers or not. **However, we rent trailers only to our customers — and on pictures they have booked from us.**

THE VERY LATEST FEATURES AND SHORTS

IDEAL
COAST TO COAST SERVICE
THE WORLDS LARGEST
FILM RENTAL LIBRARY
16 M.M. SOUND
16 M.M. SILENT
PICTURES

WE OFFER FREE — FILM ADVISORY SERVICE

IDEAL PICTURES CORPORATION AND AFFILIATES

ORDER BLANK

NAME OF INSTITUTION OR ORGANIZATION ______________________ {IF SCHOOL INDICATE ENROLLMENT __________

INDIVIDUAL APPLYING ______________________________________

ADDRESS ______________________ CITY and STATE ______________________

● *PLEASE GIVE PLAY DATES AND INDICATE* ●

Sound	Silent	Feature Only	Complete Programs	For One Day	Full Week
☐	☐	☐	☐	☐	☐

FEATURE SELECTIONS

COMPLETE PLAYDATE	FIRST CHOICE	SECOND CHOICE	THIRD CHOICE

(PLEASE SEE REVERSE SIDE FOR SERIALS AND SHORTS)

Continuation of **ORDER BLANK** *See Reverse Side*

SHORT SUBJECTS

PLEASE GIVE PLAY DATES, AND INDICATE FILMS DESIRED . . . SOUND ☐ SILENT ☐

SERIALS	2 REEL COMEDIES	CARTOONS	Educational and Miscellaneous

GIVE AT LEAST THREE CHOICES:* *May we substitute, in the event your selections not open. ☐ ***YES*** ☐ ***NO***

SPECIAL REMARKS AND SHIPPING INSTRUCTIONS

(PLEASE SEE REVERSE SIDE FOR FEATURES)

IDEAL PICTURES CORPORATION

Silver Anniversary Catalogue

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MAJOR FEATURE-PROGRAMS
UNIVERSAL and RKO

Available to Schools, Shut-in Institutions, Hospitals, Prisons, Churches, Clubs, Private Homes, Army Camps, C. P. S., Camps, Etc.

ADVANCE APPROVAL BY THE PRODUCER IS REQUIRED

Special to Schools only

SLIDING SCALE RATES

**Enrollment*	*Base Rental*	*Series Rate*
Under 251	$12.50 per booking	$10.00 per booking
251-500	$15.00 per booking	$12.50 per booking
Over 500	$17.50 per booking	$15.00 per booking

* In ordering films, please indicate exact enrollment.

Sufficient short subjects are included to make up complete one and a half hour shows.

When six or more programs are booked in advance, a discount of $2.50 per program is allowed.

*** Means A-1 Rating by National Legion of Decency, approved for ALL audiences.**

*** ABE LINCOLN IN ILLINOIS (RKO)**
Raymond Massey, Ruth Gordon, Gene Lockhart
This great stage hit is now a film of prize winning calibre. Base Rental $20.00.

▼ AFFAIR OF SUSAN (Universal)
Tenderly amusing comedy with touch of pathos. Two lonely workers meet, then part, never expecting to see each other again, only to discover that they really live in the same lowly boarding house. (Zasu Pitts, Hugh O'Connell, Walter Catlett.) Base Rental $12.50.

▼ AIRMAIL (Universal)
Interesting and exciting story of the boys who make good on the slogan that "the mail must go through." Cast includes Ralph Bellamy, Gloria Stuart, Pat O'Brien, Slim Summerville, Lillian Bond, Russell Hopton. Discussion outline. Cut for school use. Base Rental $15.00.

▼ ALIAS MARY DOW (Universal)
Do noble motives justify an imposition upon a loved one? Featuring Sally Eilers, Ray Milland, Lola Lane. Base Rental $12.50.

ALIAS THE DEACON (Universal)
Bob Burns, Mischa Auer
An amiable card sharp masquerades as a deacon while he solves the troubles of his friends. Base Rental $17.50.

ALL BY MYSELF (Universal)
Rosemary Lane, Patric Knowles, Evelyn Anders
A comedy drama with music, diverting in theme. **Available 1/45.** Base Rental $17.50.

*** ALWAYS A BRIDESMAID (Universal)**
The Andrews Sisters, Patric Knowles, Grace McDonald, Charles Butterworth
Scandal threatens a Lonely Hearts Club, and jive comes to the rescue in the gay goings on of the principals in this film. A comic and music filled jamboree! **Available 3-24-45.** Base Rental $17.50.

*** ALLEGHENY UPRISING (RKO)**
Claire Trevor, John Wayne, George Sanders
Thundering down the pages of glory roars this mighty story of Pennsylvania's early frontiers. Base Rental $17.50.

*** ALONG THE RIO GRANDE (RKO)**
Tim Holt, Ray Whitley, Betty Jane Rhodes
In this film depicting a colorful phase of the old Southwest, Tim Holt sensational young Western star plays a triple speed role. Unusually catchy music distinguishes this picture! Base Rental $17.50.

*** THE AMAZING MRS. HOLLIDAY (Universal)**
Deanna Durbin, Edmond O'Brien, Barry Fitzgerald, Arthur Treacher
This picture is dynamite. The star is shown as an outstanding dramatic actress as well as the most popular songstress of the films. Base Rental $20.00.

*** ANNABELLE TAKES A TOUR (RKO)**
Jack Oakie, Lucille Ball, Ralph Forbes
Super-salesman and press agent is none other than Jack Oakie, as the manager of the movie queen — Lucille Ball. Base Rental $17.50.

*** ANNE OF WINDY POPLARS (RKO)**
Anne Shirley, James Ellison, Patric Knowles
Fiction's best-loved heroine brought to the screen in a tender, romantic drama of a young school teacher. Base Rental $17.50.

APPOINTMENT FOR LOVE (Universal)
Charles Boyer, Margaret Sullavan
A gay streamlined comedy romance, in which Boyer plays the part of a successful Broadway playwright. Base Rental $17.50.

*** ARMY SURGEON (RKO)**
James Ellison, Jane Wyatt, Kent Taylor
Thrilling battle scenes, tension-packed drama and an appealing love story are shown in this exciting story of "soldiers who fight without guns". Base Rental $17.50.

BACHELOR MOTHER (RKO)
Ginger Rogers, David Niven
This delightful comedy stars Ginger Rogers in a hilarious romantic drama. Base Rental $17.50.

BACK STREET (Universal)

Charles Boyer, Margaret Sullavan, Richard Carlson, Frank McHugh, Tim Holt

Starred together for the first time, Boyer and Sullavan make screen history in this picture of Fannie Hurst's great novel. Base Rental $17.50.

BEHIND THE EIGHT BALL (Universal)

Ritz Brothers, Carol Bruce, Dick Foran, Grace McDonald

Fun, music and mystery highlight this film which deals with the staging of a summer theatre musical show despite the mysterious murdering of the production's guest stars. Base Rental $17.50.

▼ BELOVED (Universal)

Times change, and even music marches on. An old composer struggles desperately to make his son and grandson conform to his own musical standards, and is supremely unhappy with the encroachment of jazz. Rated "Family." (John Boles and Gloria Stuart.) Base Rental $12.50.

*** BETWEEN US GIRLS (Universal)**

Diana Barrymore, Robert Cummings, Kay Francis, John Boles, Andy Devine, Walter Catlett

Newness, novelty and a definite breakaway from conventional filmfare. Base Rental $17.50.

▼ THE BIG CAGE (Universal)

Starring Clyde Beatty, this is an animal picture that is quite different from jungle films. A thrilling story of man against beast, with a fine dramatic background furnished by a cast including Raymond Hatton, Anita Page, Andy Devine, Vince Barnett and Mickey Rooney. Base Rental $15.00.

BIG GUY (Universal)

Victor McLaglen, Jackie Cooper, Peggy Moran

In a story which blends fast action and thrills, McLaglen is seen as the warden of a great penitentiary who unexpectedly comes into possession of a fortune of stolen money and is tempted to keep it. Base Rental $17.50.

BILL OF DIVORCEMENT (RKO)

Maureen O'Hara, Adolphe Menjou, Fay Bainter, Herbert Marshall

A daring theme powerfully acted. The "feminine find of the year" in the throbbing drama of a girl who dared not marry, dreading a hereditary family trait. Base Rental $17,.50.

*** BOMBARDIER (RKO)**

Pat O'Brien, Randolph Scott, Anne Shirley

A "blockbuster" picture that ties right in with current headlines. **Available 12/44.** Base Rental $17.50.

*** BOMBAY CLIPPER (Universal)**

William Gargan, Irene Hervey

A unique and thrilling action-mystery drama which takes place almost entirely aboard a giant passenger plane, flying from Bombay, India to San Francisco. Base Rental $17.50.

BOY SLAVES (RKO)

Anne Shirley, Roger Daniel, Alan Baxter

Drawn together by chance, a group of youngsters who have become vagrants of the road, wage a bitter fight for human rights. Base Rental $17.50.

THE BOYS FROM SYRACUSE (Universal)

Allan Jones, Martha Raye, Joe Penner, Rosemary Lane

Based on the successful musical comedy which had Broadway audiences laughing for months, this film brings a brigade of singing stars and comedians to the screen. Base Rental $17.50.

*** BRINGING UP BABY (RKO)**

Katharine Hepburn, Cary Grant, Charlie Ruggles

One of the gayest laugh pictures ever made. Base Rental $17.50.

BROADWAY (Universal)

George Raft, Pat O'Brien, Janet Blair

This is an exciting, suspenseful story of a hoofer who danced to fame with a gun on his back. Base Rental $17.50.

*** BURMA CONVOY (Universal)**

Charles Bickford, Evelyn Ankers, Frank Albertson

The story takes place along the famous Asiatic highway known as the Burma Road where endless truck caravans carry supplies and munitions to beleaguered Chinese forces. Base Rental $17.50.

BUTCH MINDS THE BABY (Universal)

Virginia Bruce, Brod Crawford, Dick Foran

Hard-boiled yeggs with soft-boiled hearts, easy money and breezy babes, safe-cracking twerps and a lovable tot cavort across the screen in this best and funniest Damon Runyon comedy. Base Rental $17.50.

*** CALIFORNIA STRAIGHT AHEAD (Universal)**

John Wayne, Louise Latimer, Robert McWade, Tully Marshall

Exciting drama of the rivalry between two men, both for dominance in the transportation world and the love of a girl. Base Rental $17.50.

CALL OUT THE MARINES (RKO)

Victor McLaglen, Edmund Lowe

The swaggerin', brawlin' lady-killers of "What Price Glory" turn a spy scare into screaming slap-stick when a waterfront Mata Hari plays them for a pair of saps. Base Rental $17.50.

*** CAREER (RKO)**

Anne Shirley, Edward Ellis, Alice Eden, John Archer

This plot centers around a resolute country storekeeper who becomes the hero of his little community. Base Rental $17.50.

*** CAREFREE (RKO)**

Fred Astaire, Ginger Rogers, Ralph Bellamy

The plot is a sparkling modernized John Alden-Miles Standish-Priscilla affair with Fred Astaire as a psychiatrist who pleads the suit of his pal, Ralph Bellamy, with the latter's fiancee Ginger Rogers. Base Rental $17.50.

CHIP OFF THE OLD BLOCK (Universal)

Arthur Treacher, Patrick Knowles, Helen Vinson, Donald O'Connor

Donald O'Connor's upswinging career touches a new high in this best of the pictures he has had to date. Quiz Kid, Joel Kupperman also in feature. **Available 8-25-45.** Base Rental $17.50.

*** CINDERELLA SWINGS IT (RKO)**

Guy Kibbee, Gloria Warren, Helen Parrish, Dick Hogan, Butch & Buddy

Scattergood Baines leaves off philosophising and becomes the entrepreneur of a gay musical extravaganza for the advancement of his protege to stardom. Base Rental $17.50.

CITIZEN KANE (RKO)

Orson Welles

One of the outstanding productions in the history of the motion picture. Written, produced, directed and acted in by Orson Welles. Base Rental $20.00.

▼ CONFLICT (Universal)

Prize fighting in the gay '90s, with a lumber camp background, and a fine juvenile influence on the side of right and justice. Based on Jack London's "The Abysmal Brute." Cast includes John Wayne, Jean Rogers, Ward Bond, Tommy Bupp. Base Rental $12.50.

*** CONSPIRACY (RKO)**

Allan Lane, Linda Hayes

A drama of suspense and adventure in which Lane, a young American and Miss Hayes, native of an unnamed foreign dictator nation, try to escape from the meshes of an intricate political war in which they find themselves trapped. Base Rental $17.50.

▼ COUNSELLOR-AT-LAW (Universal)

John Barrymore in one of his greatest roles—a man who has risen from poverty to a position of power, yet does not forget those who helped him in his younger days. Based on play by Elmer Rice. Teaches that honesty is best, and that it pays to resist temptation. Base Rental $12.50.

*** COWBOY IN MANHATTAN (Universal)**
Robert Paige, Frances Langford, Leon Errol, Walter Catlett
Five new songs, two eminent comedians and a competent cast distinguishes this new musical production. **Available 12/44.** Base Rental $17.50.

CROSS COUNTRY ROMANCE (RKO)
Gene Raymond, Wendy Barrie, Hedda Hopper
Gene Raymond as a dashing hero, and Wendy Barrie as a scatterbrained heiress conduct a zany comical romance. Base Rental $17.50.

*** CURTAIN CALL (RKO)**
Barbara Read, Helen Vinson, Allan Mowbray
A rare story of heartbreak and hilarity, of burning ambition and young love, of "your dream and mine" come true. Base Rental $17.50.

*** A DAMSEL IN DISTRESS (RKO)**
Fred Astaire, Gracie Allen, George Burns
Jampacked with crackling merriment and delicious romance! This film sparkles with the brilliant dancing of Fred Astaire, the goofy antics of Burns and Allen — and snappy lines by Wodehouse. Base Rental $17.50.

DANCE GIRL DANCE (RKO)
Maureen O'Hara, Louis Hayward, Lucille Ball, Ralph Bellamy
Lavishly produced and replete with comedy, romance and drama, and studded with captivating dances and catchy melodies. Base Rental $17.50.

▼ DANGER ON WHEELS (Universal)
A poor inventor struggles to win acceptance for his new oil-burning motor, his pretty daughter and a much-misunderstood daredevil driver at his side. (Richard Arlen, Andy Devine). Base Rental $15.00.

A DATE WITH THE FALCON (RKO)
George Sanders, Wendy Barrie, James Gleason
A stirring drama packed with laughs, this film revolves about the puzzling disappearance and seeming murder of a clever scientist who has invented a cheap method of making synthetic diamonds for defense uses. Base Rental $17.50.

*** DAY THE BOOKIES WEPT (RKO)**
Joe Penner, Betty Grable
A group of taxi drivers scheme to get revenge on bookmakers who have been taking all their bets. Base Rental $17.50.

*** DEVIL AND MISS JONES (RKO)**
Jean Arthur, Robert Cummings, Charles Coburn
Cleverly blending a social document with farce comedy, human drama and sheer fantasy, this film shows Miss Arthur as a hard-working salesgirl who, aided by her socially minded sweetheart, unwittingly humanizes the grouchy, dyspeptic multi-millionaire who owns the large store where they work. Base Rental $17.50.

▼ DIAMOND JIM (Universal)
An exciting and colorful dramatization of the "Gay 90's," which marked the close of the most raucous and unrestrained era in our country's history. (Edward Arnold, Jean Arthur, Binnie Barnes.). Base Rental $15.00.

EAGLE SQUADRON (Universal)
Robert Stack, Diana Barrymore, Jon Hall, Eddie Albert, Nigel Bruce, Evelyn Ankers
America's first flying fighters in action! The story of the Spitfires, the Commandos, the W.A.A.F.'s and the Channel Fleet. Base Rental $17.50.

*** EAST SIDE OF HEAVEN (Universal)**
Bing Crosby, Joan Blondell, Mischa Auer, "Sandy"
Down to earth human story combined with music so catchy you just naturally hum it. Base Rental $17.50.

▼ ENEMY AGENT (Universal)
When a foreign under-cover agent, working in an airplane plant, finds the F. B. I. representatives athis heels, he frames an innocent fellow-draftsman in order to divert suspicion. (Richard Cromwell, Helen Vinson, Robert Armstrong). Base Rental $15.00.

EX-CHAMP (Universal)
Victor McLaglen, Tom Brown, Constance Moore, Nan Grey
McLaglen here appears as a broken-down ex-champion prize fighter whose pride is in a worthless, snobbish son who disdains his father's home. Base Rental $17.50.

*** THE FALCON'S BROTHER (RKO)**
George Sanders, Tom Conway, Jane Randolph
Strikingly original, this film is one of the most baffling mystery pictures of the year. Base Rental $17.50.

THE FALCON STRIKES BACK (RKO)
Tom Conway, Harriet Hilliard, Jane Randolph, Edgar Kennedy
Tense with gripping realism, the plot makes use of the Falcon's well known susceptibility to feminine charm to decoy him into a position where the police suspect him of a war bond robbery. **Available 11/44.** Base Rental $17.50.

THE FALCON TAKES OVER (RKO)
George Sanders, Lynn Bari, James Gleason
One of the most surprise-packed and brilliant mystery films of months. Base Rental $17.50.

*** FAMILY NEXT DOOR (Universal)**
Hugh Herbert, Joy Hodges
Introducing the scrappiest, yet most lovable screen family. Base Rental $17.50.

FATHER TAKES A WIFE (RKO)
Adolphe Menjou, Gloria Swanson, Helen Broderick
Reversing the customary theme of parents worrying about their children getting married, this gay story deals with the troubles a very conventional son encounters when his playboy father unexpectedly marries a famous actress. Base Rental $17.50.

FIFTH AVENUE GIRL (RKO)
Ginger Rogers, Walter Connolly, Verree Teasdale
This film revolves around the hectic experiences of a working girl, guest in a stately Fifth Avenue mansion. Base Rental $17.50.

FIGHT FOR YOUR LADY (RKO)
John Boles, Jack Oakie, Ida Lupino
A concert singer, a gold-digger, a night club singer, a wrestler, and a sentimental duelling expert are involved in a series of incredible but rib-tickling adventures in this musical and romantic film. Base Rental $17.50.

*** FIRST LOVE (Universal)**
Deanna Durbin, Helen Parrish, Robert Stack
In this film Deanna experiences her first romance. Base Rental $20.00.

FIVE CAME BACK (RKO)
Chester Morris, Lucille Ball, Wendy Barrie
A transport plane, crippled, comes down in the steaming jungles of Brazil — savage headhunters surround it — harry the lives of the survivors — kill some — while the crew stoically proceeds with repairs. Base Rental $17.50.

*** FIXER DUGAN (RKO)**
Lee Tracy, Virginia Weidler, Peggy Shannon
The tribulations and joys of life with a small circus travelling through the Mid-West are vividly shown. Base Rental $17.50.

FLAME OF NEW ORLEANS (Universal)
Marlene Dietrich, Bruce Cabot, Roland Young, Mischa Auer, Andy Devine
Fresh and diverting romantic comedy directed by the great Frenchman Rene Clair and featuring a galaxy of well-known stars. Base Rental $17.50.

FLIGHT FOR FREEDOM (RKO)
Rosalind Russell, Fred MacMurray, Herbert Marshall
This is one of our great films combining a powerful love story and a poignant climax under the eyes of stealthy Jap spies in the far-flung Pacific tropics. **Available 10/44.** Base Rental $17.50.

*** FLYING CADETS (Universal)**
William Gargan, Edmund Lowe, Peggy Moran, Frank Albertson, Frankie Thomas
Dramatizing the aviation schools which have become all important in the National Defense program, this film combines romance and thrills. Base Rental $17.50.

*** THE FLYING IRISHMAN (RKO)**
Douglas (Wrong Way) Corrigan, Paul Kelly, Robert Armstrong
Corrigan's life realistically depicted in "The Flying Irishman" can only be likened to an Horatio Alger tale. Base Rental $17.50.

FOLLOW THE BAND (Universal)
Leo Carrillo, Leon Errol, Mary Beth Hughes, Eddy Quillen, Alvino Rey
Crowded with headline entertainers, this pictures combines rhythm, romance and revelry. **Available 12/44.** Base Rental $17.50.

*** FOOTLIGHT FEVER (RKO)**
Alan Mowbray, Donald McBride, Elisabeth Risdon
When two Broadway impresarios attempt to produce a stage show on a shoe string, it spells comedy right from the start. Base Rental $17.50.

*** FOREVER AND A DAY (RKO)**
Charles Laughton ,Merle Oberon, Jessie Matthews, Ray Milland, Ida Lupino, Herbert Marshall, Robert Cummings, Anna Neagle, and seventy other stars.
This is the story of a house in London built in 1804 and of the people who lived in it down to the present war. **Available 10/44.** Base Rental $17.50.

FOR LOVE OR MONEY (Universal)
June Lang, Robert Kent
A love-and-laugh comedy of a young pair pursued by hoodlums, bill collectors, and the police. Base Rental $17.50.

▼ FOUR DAYS' WONDER (Universal)
Well-known whimsy by A. A. Milne makes fresh, clean comedy of early-teen-age foibles. (Jeanne Dante, Kenneth Howell, Martha Sleeper, Alan Mowbray.) Base Rental $12.50.

FOUR JACKS AND A JILL (RKO)
Ray Bolger, Anne Shirley
Seven song hits and a medley of unique dances enliven this gay romantic comedy which shows that Anne Shirley can sing and that she can dance and how! Base Rental $17.50.

▼ FRESHMAN YEAR (Universal)
Mad glad song of the first of happy college years. (Dixie Dunbar, William Lundigan, Constance Moore, Ernest Truex) (See also "Swing That Cheer."). Base Rental $16.00.

FULL CONFESSION (RKO)
Victor McLaglen, Sally Eilers, Joseph Calleia
What happens when a determined priest tries to force a stubborn two fisted brute to confess a murder before an innocent man is electrocuted provides high pitched drama. Base Rental $17.50.

THE GAY FALCON (RKO)
George Sanders, Wendy Barrie
The "Falcon," man-about-town with a brilliant record of solving baffling crimes and an equally distinguished record as a squire of beautiful ladies, finds himself faced by some baffling situation. See how he meets them! Base Rental $17.50.

*** GET GOING (Universal)**
Robert Paige, Grace McDonald, Vera Vague
Laughs and more laughs, in this action comedy of small-town girls with big-town ideas in wartime Washington. **Available 2/45.** Base Rental $17.50.

*** GET HEP TO LOVE (Universal)**
Gloria Jean, Donald O'Connor, Jane Frazee, Robert Paige, the Jivin' Jack and Jills
The adventures of a youthful concert star who wearies of it all and runs away. Base Rental $17.50.

▼ GIFT OF GAB (Universal)
Phil Baker, Ruth Etting, Gene Austin, Karloff, Grahame McNamee, Victor Moore, and Gus Arnheim's orchestra are a few of the radio personalities that help Edmund Lowe and Gloria Stuart put oer the story of a man who skyrockets to fame as a radio announcer. Rated "Family.". Base Rental $12.50.

*** GILDERSLEEVE'S BAD DAY (RKO)**
Harold Peary, Jane Darwell, Nancy Gates
This film is a bell-ringer — funny, fast and cleverly plotted. **Available 12/44.** Base Rental $17.50.

*** GOODBYE BROADWAY (Universal)**
Alice Brady, Charles Winninger, Dorothea Kent, Tommy Riggs
This unusually funny story revolves around an old Broadway headliner and his wife, who always talk about quitting the stage but never do. Base Rental $17.50.

▼ GOOD FAIRY (Universal)
Romantic comedy, in the Continental manner, with outstanding cast of star players. An orphan girl (Margaret Sullavan) is taken under the protection successively of a theater owner (Alan Hale), a waiter (Reginald Owen), a millionaire (Frank Morgan), and a young lawyer (Herbert Marshall). The girl's childish confidence in her destiny to play "good fairy" to those she meets leads to many side-splitting complications. Base Rental $15.00.

GOOD MORNING JUDGE (Universal)
Dennis O'Keefe, Louise Albritton
This is a zestful action comedy based on the complications and altercations pertaining to a $100,000 plagarism suit. **Available 12/44.** Base Rental $17.50.

GOVERNMENT GIRL (RKO)
Olivia de Haviland, Sonny Tufts, Anne Shirley
Available..........Shut-ins 1/45, U.S.O. 10/44
This is a delightful romantic comedy laid against the exciting background of wartime Washington. Base Rental $17.50.

*** THE GREAT GILDERSLEEVE (RKO)**
Harold Peary, Jane Darwell
Homey, down to earth humor that keeps audiences chuckling for days, brings sparkle and zest to "The Great Gildersleeve." Base Rental $17.50.

THE GREAT IMPERSONATION (Universal)
Ralph Bellamy, Evelyn Ankers, Kaaren Verne
A drama of international spying and intrigue adapted from a thriller of E. Phillips Oppenheim. Base Rental $17.50.

*** GREAT MAN VOTES (RKO)**
John Barrymore, Virginia Weidler, Peter Holden
Here is the story of a self made failure who was a hero to his kids. Base Rental $17.50.

GREEN HELL (Universal)
Douglas Fairbanks, Jr., Joan Bennett
Set in the Amazon jungles, this story is full of excitement, love and adventure. Base Rental $17.50.

*** GUNGA DIN (RKO)**
Cary Grant, Victor McLaglen, Douglas Fairbanks, Jr., Joan Fontaine
One of the greatest adventure dramas ever screened. Base Rental $17.50.

GUNG HO (Universal)
Randolph Scott, Allan Curtus, Grace McDonald, Noel Barry, Jr.

Gripping picture of the training of Carlson's "Raiders" and the epochal-exploit in destroying a Japanese installation on Makim Island. **Available 6-30-45.** Base Rental $17.50.

HAVING WONDERFUL TIME (RKO)
Ginger Rogers, Douglas Fairbanks, Jr., Lucille Ball, Peggy Conklin

This is a film version of the Broadway stage hit replete with drama and comedy. The story is a simple but human chronicle of two young people, frantically trying to grasp a few hours of blissful romance in a vacation camp. Base Rental $17.50.

▼ HEAVEN ON EARTH (Universal)

Based on Ben Lucien Burman's noted novel, "Mississippi," it depicts the social chasm between steamboat and shantyboat folk, and the troubles of a shanty-boy raised on a steamer in ignorance of his humble origins. He returns to his people for kinship and love, and it takes "Old Man River" on a flood rampage to bring re-union in the face of common danger. A moving, human story, marvellously played by fine cast. (Lew Ayres, Anita Louise.) Discussion outline available. Base Rental $15.00.

HELLZAPOPPIN' (Universal)
Olsen and Johnson, Martha Raye, Hugh Herbert, Mischa Auer, Jane Frazee, Robert Paige

A great film version of the smash-bang, eye-filling, tune-filled New York hit, with Olsen and Johnson playing their own crackpot, screwball, zany selves. Base Rental $17.50.

*** HERE WE GO AGAIN (RKO)**
Fibber McGee and Molly, Edgar Bergen, Charlie McCarthy, Ginny Simms, Ray Noble and Orchestra

High powered fun and delightful romance abound in this top-notch comedy featuring four of Radio's foremost entertainers. Bergen and Charlie, with Mortimer Snerd as their guide, are searching the woods for a rare type of moth when the McGees arrive in the same locality, and then the fun begins! Base Rental $17.50.

▼ HERO FOR A DAY (Universal)

All-too-brief college glories are rethrust upon a one time football hero, now working at a menial job. Anita Louise, Dick Foran, Charley Grapewin, Emma Dunn. Base Rental $15.00.

HE'S MY GUY (Universal)
Joan Davis, Dick Foran, Irene Hervey

This is an unusually diverting film which deals with former vaudeville performers who stage morale-building shows in defense plants. **Available 10/44.** Base Rental $17.50.

*** HI BUDDY (Universal)**
Robert Paige, Harriet Hilliard, Dick Foran, Marjorie Lord, The Kings Men, The Step Brothers, The Four Sweethearts

The traveling troubadors and entertainers who visit the Army camps are happily dramatized in this song-packed funfilm. Base Rental $17.50.

HIGH FLYERS (RKO)
Lupe Velez, Bert Wheeler, Robert Woolsey

These two high-voltage fun makers are cast as operators of a trick airplane concession. Base Rental $17.50.

HIGHWAYS BY NIGHT (RKO)
Richard Carlson, Jane Randolph, Jane Darwell, Barton MacLane

Tense, funny, timely — exciting melodrama of the roaring ten-tonners, of the men — and women too — who hurl them over the highways. Base Rentl $17.50.

HI GOOD LOOKING (Universal)
Harriet Hilliard, Kirby Grant, Roscoe Kearn, Ozzie Nelson and orchestra, Jack Teagarden and orchestra

Miss Hilliard is a small town gal who comes to Hollywood to make her mark as a radio warbler, while Grant is a star of the Airway. **Available 9-24-45.** Base Rental $17.50.

▼ HIS NIGHT OUT (Universal)

A time-honored starting point, the lowly clerk out on a last fling in mistaken anticipation of an early demise — undergoes many hilariously unconventional turns before it reaches its happy ending. (Edward Everett Horton, Irene Hervey). Base Rental $15.00.

*** HITTING A NEW HIGH (RKO)**
Lilly Pons, Jack Oakie, Edward Everett Horton

Dealing in joyous fashion with the efforts of a young French singer to win operatic recognition through an ingenious hoax, Lily Pons' "Hitting a New High" brings a riotous musical comedy triumph for the diva, with Jack Oakie as her co-star. Base Rental $17.50.

HI YA CHUM (Universal)
Jane Frazee, Robert Paige, The Ritz Bros.

This film depicts a mirthful combat between a law-abiding restaurant and a crooked gambling establishment in a Western boom town. Base Rental $17.50.

*** HOLD THAT GHOST (Universal)**
Bud Abbott, Lou Costello, The Andrews Sisters, Ted Lewis

Carrying a rip-roaring story as a means of holding together their zany dialogue and gags, this picture elevates this popular team to new heights. Base Rental $20.00.

*** HOUSE OF SEVEN GABLES (Universal)**
George Sanders, Margaret Lindsay

A screen version of Nathaniel Hawthorne's book of the same name. Base Rental $17.50.

*** HOW'S ABOUT IT (Universal)**
The Andrews Sisters, Robert Paige, Grace McDonald, Walter Catlett, Buddy Rich and his orchestra

A lively concoction of romantic happenings which take place behind the scenes of the music publishing business. Base Rental $17.50.

▼ THE HUMAN SIDE (Universal)

A happy-go-lucky theatrical producer has quite a time providing for his long-suffering wife and four growing children. Infectious comedy of family life. (Adolphe Menjou, Doris Kenyon.). Base Rental $12.50.

HUNCHBACK OF NOTRE DAME (RKO)
Charles Laughton, Maureen O'Hara, Sir Cedric Hardwicke, Thomas Mitchell

Two hours of mounting thrills and breathtaking magnificence in the midst of medieval Paris feature the screen adaptation of Victor Hugo's famous novel. Base Rental $17.50.

*** HURRY, CHARLIE, HURRY (RKO)**
Leon Errol, Mildred Coles

Slapstick invention makes for merry screen nonsense in this perfect vehicle for Errol. Base Rental $17.50.

▼ IDOL OF THE CROWDS (Universal

The fastest and fightingest game known—ice hockey—gives a stirring action background for this story of a young boy who "manages" his big foster brother into the top ranks of professional hockey. (John Wayne, Billy Burrud, Sheila Bromley). Base Rental $15.00.

*** I'M FROM THE CITY (RKO)**
Joe Penner, Lorraine Kreuger

Joe Penner has turned country boy and cowboy. Base Rental $17.50.

I'M STILL ALIVE (RKO)
Kent Taylor, Linda Hayes, Ralph Morgan

An unusual story of an experienced movie stuntman and a temperamental screen star. Base Rental $17.50.

THE INFORMER (RKO)
Victor McLaglen, Heather Angel, Preston Foster

This Academy Award winner brings to the screen the unforgettable performance of Victor McLaglen as the informer who betrays his best friend and then writhes in the torment of his conscience. Base Rental $17.50.

IN NAME ONLY (RKO)
Carole Lombard, Cary Grant, Kay Francis

Miss Francis as the mercenary wife of Gary Grant refuses to give him up to Carole Lombard as the "other woman." Out of this impasse the story climbs to gripping dramatic heights. Base Rental $17.50.

*** INSIDE INFORMATION (Universal)**
June Lang, Dick Foran, Mary Carlisle, Harry Carey

Criminologist tracks down jewel robbers with a microscope and fires a gun that shoots pictures. Base Rental $17.50.

*** IN THE NAVY (Universal)**
Bud Abbott, Lou Costello, Dick Powell, The Andrews Sisters

Crammed with entertainment values, this new service comedy will go down in film history as one of the laugh hits of this generation. Base Rental $20.00.

INVISIBLE AGENT (Universal)
Ilona Massey, Jon Hall, Peter Lorre, Sir Cedric Hardwicke

A fabulously clever motion picture which could be called the invisible Commando because in this film, he invades the inner chambers of the enemy high command, learning their secrets and spreading fear and dismay where these elements do the most good. Base Rental $17.50.

*** INVISIBLE MAN RETURNS (Universal)**
Sir Cedric Hardwicke, Vincent Price, Nan Grey

Suggested by the H. G. Wells story, "The Invisible Man". Base Rental $17.50.

*** IT AIN'T HAY (Universal)**
Bud Abbott, Lou Costello, Grace McDonald

Romance and music are blended in this film by Damon Runyon starring the nation's No. 1 box-office champions, Abbott & Costello. **Available 10/44.** Base Rental $20.00.

*** IT COMES UP LOVE (Universal)**
Gloria Jean, Donald O'Connor, Ian Hunter, Louise Albritton, Frieda Inescourt, Charles Coleman

It comes up all-around musical diversion when Gloria sings in this youthful romantic comedy drama. **Available 10/44.** Base Rental $17.50.

*** IT STARTED WITH EVE (Universal)**
Deanna Durbin, Charles Laughton, Robert Cummings

Deanna Durbin at her usual best combined with Charles Laughton in a comedy role results in one of the season's most delightful films. Base Rental $20.00.

JOAN OF PARIS (RKO)
Michele Morgan, Paul Henreid, Thomas Mitchell, May Robson

A romance of the R.A.F. Base Rental $17.50.

JOURNEY INTO FEAR (RKO)
Joseph Cotten, Dolores Del Rio, Orson Welles, Agnes Moorehead

Reaching a new high in suspense, the plot of this film is concerned with the strangest assortment of passengers ever assembled on a movie ship. Base Rental $17.50.

JOY OF LIVING (RKO)
Irene Dunne, Douglas Fairbanks, Jr., Alice Brady, Guy Kibbee, Eric Blore, Lucille Ball

A comedy with music by Jerome Kern. Base Rental $17.50.

KEEP 'EM FLYING (Universal)
Bud Abbott, Lou Costello, Martha Raye, Carol Bruce

One of the greatest comedy offerings of all time, this lavishly produced picture is backgrounded against Uncle Sam's efforts to train 50,000 officers a year for the Army Air Corps. Base Rental $20.00.

KING KONG (RKO)
Fay Wray, Bruce Cabot

Captured by a band of explorers and brought to New York, this fabulous creature escapes. A thrill picture that you will never forget. Base Rental $17.50.

KITTY FOYLE (RKO)
Ginger Rogers, Dennis Morgan, Ernest Cossart

This is the kind of picture producers dream about—filmed from the novel by Christopher Morley — it tells the story of a "white-collar" girl who falls in love with a wealthy society man. Base Rental $17.50.

*** LA CONGA NIGHTS (Universal)**
Hugh Herbert, Constance Moore, Dennis O'Keefe

A gay musical farce offering Hugh Herbert a chance to romp through seven of the dizziest roles in comedy history. Base Rental $17.50.

*** LADDIE (RKO)**
Tim Holt, Virginia Gilmore, Joan Carroll

Imbued with the atmosphere of Mid-West farm country of sixty years ago, "Laddie" comes to the screen as a faithful, realistic presentation of the unforgettable novel. Base Rental $17.50.

LADY IN A JAM (Universal)
Irene Dunne, Patric Knowles, Ralph Bellamy

A gay comedy in whcih Irene Dunne portrays an irresponsible New York heiress who loses her fortune and then goes West. Base Rental $17.50.

LADY SCARFACE (RKO)
Dennis O'Keefe, Judith Anderson

Pitting the cunning of a woman against the brains of the police, this picture provides new thrills, novel adventure and fast action. Base Rental $17.50.

▼ THE LADY FIGHTS BACK (Universal)

When a long established fishing club finds the beauties and joys of its sylvan fastness threatened by a big power project, its young manager fights back with all the many weapons at her command. Praised by a national church reviewing body (Lutheran) as one of the best and most enjoyable of entertainment films for young and old. (Irene Hervey, Kent Taylor). Base Rental $15.00.

▼ LADY TUBBS (Universal)

Alice Brady is the popular, care-free cook of a construction camp, when a British lawyer seeks her out with the information that she is heir to a half-million dollars. Base Rental $12.50.

*** LEGION OF THE LAWLESS (RKO)**
George O'Brien, Virginia Vale

A hitherto unused theme in Western drama deals with a Vigilante organization which has become an instrument for oppression and illicit gain. Base Rental $17.50.

* **LET'S MAKE MUSIC (RKO)**

Bob Crosby, Jean Rogers, Elisabeth Risdon, Joseph Buloff

This film in which Bob Crosby makes his film debut, proves the noted band leader has a 24 Karat personality. Base Rental $17.50.

* **LETTER OF INTRODUCTION (Universal)**

Adolphe Menjou, Andrea Leeds, Edgar Bergen
Charlie McCarthy

Just a simple letter of introduction—but it provides some of the greatest dramatic moments ever seen on any screen. Base Rental $17.50.

* **A LITTLE BIT OF HEAVEN (Universal)**

Gloria Jean, Robert Stack, Hugh Herbert, C. Aubrey Smith, Butch & Buddy

This film traces the rise of an East Side girl to radio singing fames with the ensuing rush of sudden wealth causing "high hat" dissension in the once happy family. Base Rental $20.00.

* **LITTLE MEN (RKO)**

Kay Francis, Jack Oakie, George Bancroft and "Elsie" the Cow

A rousing and modern version of Louisa M. Alcott's book. Base Rental $17.50.

LITTLE TOUGH GUY (Universal)

The disintegration of family life that follows the jailing of the chief breadwinner makes an appealing human story in which laughter and tears are closely mingled. (The Dead End Kids, with Helen Parrish, Jackie Searl, Robert Wilcox, Billy Halop). Base Rental $17.50.

* **LITTLE WOMEN (RKO)**

Katharine Hepburn, Joan Bennett, Paul Lukas,
Frances Dee, Jean Parker

A stirring, heart-warming picturization of the Alcott classic. Base Rental $20.00.

* **LOOK WHO'S LAUGHING (RKO)**

Edgar Bergen, Charlie McCarthy, Lucille Ball,
Fibber and Molly McGee

Romantic mix-ups, a crooked real estate scheme that backfires, spectacular thrills in a runaway plane pervade this smash comedy. Base Rental $17.50.

LOVE AFFAIR (RKO)

Irene Dunne, Charles Boyer

Romance rides the ocean waves when Irene Dunne and Charles Boyer meet on a Naples to New York steamship. Base Rental $17.50.

* **LUCKY DEVILS (Universal)**

Richard Arlen, Andy Devine

Daring pair of newsreel camera men scoop their rival by fast thinking and reckless courage. Base Rental $17.50.

▼ **LUCKY DOG (Universal)**

Finely dramatic dog story told from dog's own viewpoint with singular success. Touching loyalty between dog and master, and between two dogs in widely differing walks of life ("Chic" Sale and "Buster"). Base Rental $12.50.

LUCKY PARTNERS (RKO)

Ginger Rogers, Ronald Coleman, Spring Byington,
Jack Carson

A sweepstakes ticket, a synthetic honeymoon, life in Greenwich illage, a hero and a heroine in the persons of Ronald Colman and Ginger Rogers make this film a delightful comedy drama. Base Rental $17.50.

* **MAD ABOUT MUSIC (Universal)**

Deanna Durbin, Herbert Marshall, Gail Patrick

This film is a comedy drama with a story that lends itself to several highly emotional passages. Base Rental $20.00.

* **MAD MISS MANTON (RKO)**

Barbara Stanwyck, Henry Fonda

A hectic romance develops between Barbara Stanwyck, heiress, and newspaperman, Henry Fonda, in this comedy thriller. Base Rental $17.50.

* **MA! HE'S MAKING EYES AT ME (Universal)**

Tom Brown, Anne Nagel, Constance Moore

A "swing musical" picture highlighted by romance and laughter. Base Rental $17.50.

THE MAGNIFICENT AMBERSONS (RKO)

Joseph Cotten, Dolores Costello, Anne Baxter, Tim Holt,
Agnes Moorehead, Ray Collins, Erskine Sanford,
Richard Bennett

The prize-winning novel of Booth Tarkington reaches the screen with the unmistakable stamp of Orson Welles. Base Rental $17.50.

▼ **THE MAGNIFICENT BRUTE (Universal)**

"This morning I knew vastly more of what goes on in the steel industry than I knew yesterday morning," writes Welford Beaton, editor of the Hollywood Spectator. Victor McLaglen, Binnie Barnes, Jean Dixon, Henry Armetta, Ann Preston, and Burrud. Based on Liberty Magazine story, "Big," it teaches definitely that strength alone and physical supremacy are not enough for happiness. Base Rental $15.00.

* **A MAN TO REMEMBER (RKO)**

Edward Ellis, Anne Shirley

How a benevolent rural doctor, unappreciated and unpaid by his penny-pinching flock for more than twenty years, suddenly emerges as the hero of the hour is dramatically depicted in this story. Base Rental $17.50.

* **MARGIE (Universal)**

Mischa Auer, Nan Grey, Tom Brown, Edgar Kennedy

A romantic comedy set to music, this film tells the gay story of a South American banana king whose romantic blunders bring happiness to a pair of young lovers. Base Rental $17.50.

* **MARINES FLY HIGH (RKO)**

Richard Dix, Chester Morris, Lucille Ball

An exciting adventure drama of an action-packed, dangerous search for a terrorist gang operating in a Central American Republic. Base Rental $17.50.

MARRIED AND IN LOVE (RKO)

Alan Marshal, Barbara Read, Patric Knowles,
Helen Vinson

This film presents a foursome of film favorites in an absorbing story of two couples facing disaster because of one woman's vanity. Base Rental $17.50.

* **MARSHAL OF MESA CITY (RKO)**

George O'Brien, Virginia Vale

A vivid chapter from the history of the American West, showing how a courageous federal Marshal brings law and order to a small frontier community. Base Rental $17.50.

* **MEET THE CHUMP (Universal)**

Hugh Herbert, Anne Nagel

A boisterous comedy in which Hugh Herbert has one of his most successful characterizations in the role of a whacky guardian of a ten million dollar estate. Base Rental $17.50.

* **MEN AGAINST THE SKY (RKO)**

Richard Dix, Kent Taylor, Edmund Lowe, Wendy Barrie

Disclosing the inside working of a modern aircraft plant and the feverish activities and heart-throbs that accompany the making of a new, high-speed pursuit ship. Base Rental $17.50.

* **MEN OF TEXAS (Universal)**

Robert Stack, Brod Crawford, Jackie Cooper, Anne
Gwynne, Ralph Bellamy, Jane Darwell, Leo Carrillo

Here is a story as big as Texas, born of the Southwest's wildest decade, filled with courage and heart of immortal Sam Houston. Base Rental $17.50.

MEXICAN SPITFIRE (RKO)
Leon Errol, Lupe Velez, Donald Woods
This picture depicts the hectic adventures of a Latin entertainer in New York. Base Rental $17.50.

MEXICAN SPITFIRE AT SEA (RKO)
Lupe Velez, Leon Errol, Buddy Rogers, Zasu Pitts
Entire action of this hilarious comedy takes place aboard an ocean liner sailing for Hawaii. Base Rental $17.50.

MEXICAN SPITFIRE'S BABY (RKO)
Lupe Velez, Leon Errol, Buddy Rogers
The Mexican Spitfire and the stutter-legged comedian join hands again in a devastating explosion of laughs. Base Rental $17.50.

MEXICAN SPITFIRE'S ELEPHANT (RKO)
Lupe Velez, Leon Errol, Elisabeth Risdon
The latest, fastest and merriest of this series. A beautiful blonde "plants" a small onyx elephant containing a valuable jewel on Errol to get it past the customs inspectors. Base Rental $17.50.

MEXICAN SPITFIRE OUT WEST (RKO)
Lupe Velez, Leon Errol, Donald Woods, Linda Hayes
The story is built around the efforts of Lupe to gain more attention from her busy husband by pretending to apply for a divorce in Reno. Base Rental $17.50.

MEXICAN SPITFIRE SEES A GHOST (RKO)
Lupe Velez, Leon Errol, Buddy Rogers
Continuing the hilarious adventures of the fiery Carmelita and her versatile Uncle Matt, this picture is a sure fire hit of laughs, chills and thrills. Base Rental $17.50.

MILLIONAIRE PLAYBOY (RKO)
Joe Penner, Linda Hayes, Russ Brown
Aimed squarely at the comedy bull's-eye, the pivotal point of the story is Joe's reaction to kisses — violent hiccuping fits! Base Rental $17.50.

*** MISSING EVIDENCE (Universal)**
Preston Foster, Irene Hervey
A thrilling action drama showing how sweepstakes ticket racketeers operate. Base Rental $17.50.

MISTER BIG (Universal)
Donald O'Connor, Peggy Ryan, Gloria Jean, Robert Paige, Elyse Knox
Donald O'Connor, and the youngsters comprising the Jivin, Jacks and Jills dispense song, dance and the patter of the jitterbug set with spirit, proficiency and no stint whatsoever. **Available 12/44.** Base Rental $17.50.

MOONLIGHT IN VERMONT (Universal)
Gloria Jean, Ray Malone
Fine, clean, youthful comedy romance of a dramatic school that goes rural. Excellent singing and dancing. **Available 6-24-45.** Base Rental $17.50.

*** MOTHER CAREY'S CHICKENS (RKO)**
Anne Shirley, Ruby Keeler, James Ellison, Fay Bainter, Frank Morgan
This is a faithful film version of the classic by Kate Douglas Wiggin. Base Rental $17.50.

*** MUTINY IN THE ARCTIC (Universal)**
Richard Arlen, Andy Devine
Three men, a girl and a dog afloat on an iceberg at the mercy of tugging arctic currents! Base Rental $17.50.

*** MY FAVORITE SPY (RKO)**
Kay Kyser, Ellen Drew, Jane Wyman
Laughter is the keynote of this gay, tuneful comedy. Base Rental $17.50.

MY FAVORITE WIFE (RKO)
Irene Dunne, Cary Grant, Randolph Scott, Gail Patrick
A streamlined treatment of the familiar Enoch Arden plot. Base Rental $17.50.

MY LITTLE CHICKADEE (Universal)
Mae West, W. C. Fields
A rip-roaring comedy western with laughter as its main object. Base Rental $17.50.

▼ MY PAL, THE KING (Universal)
Tom Mix's Wild West Circus, on tour in Europe, gets mixed up in a palace revolution, and saves the boy king from his enemies. (Tom Mix, Mickey Rooney.) Base Rental $12.50.

▼ NAGANA (Universal)
An international group of doctors meet in the African jungle to combat the dread "Nagana" or sleeping sickness. The self-sacrificing heroism of the true scientist knows no race or nationality in this war of man vs. microbes. Rated as "Family-juvenile." Cast includes Tala Birell, Melvyn Douglas, Onslow Stevens, Nobel Johnson, Everett Brown. Base Rental $12.50.

NEWSBOYS' HOME (Universal)
Jackie Cooper, Edmund Lowe, Wendy Barrie, and "The Little Tough Guys"
Daring in its content and lifted alive and throbbing from a big city's streets, this film is a moving story, showing Jackie Cooper as the country boy who seeks shelter in "Newsboys' Home" and fights his way to leadership of the ruffian newsboy gang. Base Rental $17.50.

NIGHTMARE (Universal)
Diana Barrymore, Brian Donlevy, Henry Daniell, Eustace Wyatt, David Clyde, Gavin Muir
Thrill for thrill — chill for chill — the screen has never matched this startling story of a Lady and a Mugg who were each other's prisoner. Base Rental $17.50.

▼ NOBODY'S FOOL (Universal)
A seemingly dumb visitor from the sticks is inveigled into big city real-estate speculations, with results that turn out badly —for the speculators. Edward Everett Horton at his funniest best, with Glenda Farrell and Cesar Romero in fine supporting roles. Base Rental $15.00.

NO, NO, NANETTE (RKO)
Anna Neagle, Richard Carlson, Helen Broderick, Roland Young
In the role of a helpful niece who tries to assist her susceptible uncle out of a series of feminine complications, Anna Neagle comes gayly to the screen in a sparkling version of the Broadway musical success. Base Rental $17.50.

NURSE EDITH CAVELL (RKO)
Anna Neagle, May Robson, Edna May Oliver, Zasu Pitts
The powerful drama of the World War nurse, Edith Cavell. Base Rental $17.50.

▼ ONCE IN A LIFETIME (Universal)
Such a screaming satire at the motion picture industry's own expense could be produced only "once in a lifetime." Jack Oakie, Aline MacMahon, Louise Fazenda, Zasu Pitts, Gregory Ratoff. Base Rental $15.00.

ONCE UPON A HONEYMOON (RKO)
Cary Grant, Ginger Rogers, Walter Slezak, Albert Dekker
Mirth, romance and melodramatic power blend for fascinating entertainment in this picture created especially for Cary Grant and Ginger Rogers. Base Rental $17.50.

ONE CROWDED NIGHT (RKO)
Billie Seward, William Hoade, Charles Lang, J. M. Kerrigan
An unusual and stirring tale of twelve thrilling hours in an auto camp on the Arizona desert. Base Rental $17.50.

ONE NIGHT IN THE TROPICS (UNIVERSAL)

Allan Jones, Nancy Kelly, Bud Abbott, Lou Costello

A new score by the great composer, Jerome Kern, plus a fast-moving and colorful romantic comedy involving Abbott and Costello. Base Rental $17.50.

* **PARACHUTE BATTALION (RKO)**

Robert Preston, Edmund O'Brien, Nancy Kelly, Harry Carey

A dramatic bombshell, presented in a manner never before photographed. Base Rental $17.50.

PARDON MY SARONG (Universal)

Abbott and Costello, Virginia Bruce, Robert Paige

The nation's two foremost screwball comics have done it again on a bigger and even balmier scale! Base Rental $20.00.

▼ **PAROLE (Universal)**

The parole system, and, in general, society's attitude toward those who have been convicted of violating its codes, is one of the most discussed social problems today. Henry Hunter, Ann Preston, Alan Dinehart, Alan Baxter, Noah Beery, Jr., Grant Mitchell. Base Rental $12.50.

PARIS CALLING (Universal)

Elizabeth Bergner, Randolph Scott, Basil Rathbone

Modern melodrama on the grand scale, Bergner becomes part of the underground front after the fall of France, playing the piano in a third-rate cabaret. Base Rental $17.50.

PETTICOAT LARCENY (RKO)

Ruth Warrick, Joan Carroll, Walter Reed

Here is an entertainment dish free from world troubles and problems. It revolves around the disappearance of 11 year old Joan into the underworld to get material for a radio serial in which she acts. **Available 12/44.** Base Rental $17.50.

PHANTOM LADY (Universal)

Ella Rains, Franchot Tone, Allan Curtin, Thomas Gomez

The title refers to the women needed as an alibi for an innocent man. A woman for whom a thorough search occurs providing the thread of a story. **Available 7-28-45.** Base Rental $17.50.

PITTSBURGH (Universal)

Marlene Dietrich, Randolph Scott, John Wayne, Frank Craven, Louise Allbritton

Out of the wild decade of bootleg and easy riches comes a fist-lashing tempest of thrills, whirlwind love, mighty adventure. Base Rental $17.50.

PLAY GIRL (RKO)

Kay Francis, James Ellison, Nigel Bruce, Mildred Coles

The story revolves about the daring exploits of a glamorous fortune hunter. Base Rental $17.50.

PLAYMATES (RKO)

Kay Kyser, John Barrymore, Lupe Velez

You can't beat this combination: a band leader who "Goes Shakespeare", a jilted lady bull fighter seeking vengeance, a once great stage star forced to team with a jive king and two screwy press agents with one-track minds! Base Rental $17.50

PRESCRIPTION FOR ROMANCE (Universal)

Wendy Barrie, Kent Taylor, Misha Auer

This film is a romantic comedy which tells of the mad and amusing chase that goes on in Hungary where an American embezzler seeks refuge. Base Rental $17.50.

PRIMROSE PATH (RKO)

Ginger Rogers, Joel McCrea

Here is a love story that is really different. Base Rental $17.50.

* **RADIO CITY REVELS (RKO)**

Bob Burns, Jack Oakie, Kenny Baker, Victor Moore

The cream of screen and radio stars in a roaring musical show! Base Rental $17.50.

RAGE OF PARIS (Universal)

Danielle Darrieux, Douglas Fairbanks, Jr., Helen Broderick, Louis Hayward

The story of a little French girl who lands in New York penniless and obtains a job posing for a famous artist. Base Rental $17.50.

RENO (RKO)

Richard Dix, Gail Patrick, Anita Louise

Gail Patrick plays the wife of Richard Dix, who as an enterprising lawyer settles in Reno. Base Rental $17.50.

* **RIDE 'EM COWBOY (Universal)**

Bud Abbott, Lou Costello, Dick Foran, Johnny Mack Brown

Hailed as the most elaborate and funniest of the comedies acted by this team. Base Rental $20.00.

* **ROBBERS OF THE RANGE (RKO)**

Tim Holt, Virginia Vale

The story is laid in the days when new railroads were building through the West. Base Rental $17.50.

▼ **ROMANCE IN THE RAIN (Universal)**

Lively and amusing story of a press agent who created a Cinderella for publicity purposes, only to find that she got to be too much for him. Rated "Family." (Roger Pryor, Heather Angel, Victor Moore.) Base Rental $12.50.

* **ROOM SERVICE (RKO)**

Marx Brothers, Lucille Ball, Ann Miller

This sensational Broadway stage hit is even more hilarious on the screen as portrayed by the Marx Bros. Base Rental $17.50.

RHYTHM OF THE ISLANDS (Universal)

Allen Jones, Jane Frazee, Andy Devine

Away from the war to a dreamy tropical romance of the South Sea Islands. **Available 11/44.** Base Rental $17.50.

SABOTEUR (Universal)

Priscilla Lane, Robert Cummings

This is the story of a boy and girl who fell in love at the point of death, but heroically survived to fulfill their romance. Base Rental $17.50.

* **SAN ANTONIO ROSE (Universal)**

Jane Frazee, Robert Paige, Lon Chaney, Jr., Eve Arden

A tune-filled picture of fast and whacky entertainment, largely comedy and music. Base Rental $17.50.

* **SANDY GETS HER MAN (Universal)**

Baby Sandy, Una Merkel, Stuart Erwin, Edgar Kennedy

More than fulfilling the promise of her earlier pictures, Baby Sandy romps through her most hilarious role to date. Base Rental $17.50.

* **THE SAINT IN LONDON (RKO)**

George Sanders, Sally Gray

The slickest outlaw of all hits London in the person of the Saint. Base Rental $17.50.

THE SAINT IN NEW YORK (RKO)

Louis Hayward, Kay Sutton, Jonathan Hale

The Saint by his own lawless but efficient methods sets about wiping out the city's six most prominent gangsters, one by one. Base Rental $17.50.

* **THE SAINT IN PALM SPRINGS (RKO)**

George Sanders, Wendy Barrie, Linda Hayes

Comedy and action are well mixed in this new "Saint" film in which the foe of criminals jouts with a gang working for an unnamed foreign country, bent on obtaining $200,000 in stamps. Base Rental $17.50.

* **THE SAINT'S DOUBLE TROUBLE (RKO)**

George Sanders, Helen Whitney, Bela Lugosi

Playing the dual roles of the Saint and of a notorious jewel thief whom he is sworn to kill, George Sanders turns in a striking characterization. Base Rental $17.50.

THE SAINT TAKES OVER (RKO)

George Sanders, Wendy Barrie, Jonathan Hale

Baffling problems again confront Inspector Fernack of the New York police. Again it is the Saint — who, despite the murder of essential key men, one after another, pushes through to solve the mystery. Base Rental $17.50.

*** SANDY IS A LADY (Universal)**

Tom Brown, Nan Grey, Mischa Auer, Butch & Buddy

Five comedians ably support Sandy in this laugh getting comedy. Base Rental $17.50.

▼ SATURDAY'S MILLIONS (Universal)

Campus hero believes his popularity due solely to his playing ability, until a bitter experience teaches him otherwise. Players include Robert Young, Leila Hyams, John Mack Brown, Andy Devine, Mary Carlisle. Base Rental $15.00.

*** SCATTERGOOD SURVIVES A MURDER (RKO)**

Guy Kibbee, Margaret Hayes, Wallace Ford

This production hits a new high point in laughs and mystery construction. Base Rental $17.50.

*** SERVICE DE LUXE (Universal)**

Constance Bennett, Vincent Price, Charlie Ruggles, Mischa Auer

As the owner of the fashionable Madison service Connie Bennett manages the lives of her wealthy clients. Base Rental $17.50.

*** SEVEN DAYS LEAVE (RKO)**

Victor Mature, Lucille Ball, Freddy Martin and Orchestra

This one is crammed to the brim with swift action, tuneful music and headline specialty acts of screen and radio. Base Rental $17.50.

SEVEN MILES FROM ALCATRAZ (RKO)

James Craig, Bonita Granville, Cliff Edwards

Strong on story — situations turning and twisting — suspense squeezed out to the last gasp — acted to the hilt by a cast caught with the excitement of the story and the strength of their roles — there's romance born of danger — and a fighting climax! Base Rental $17.50.

SEVEN SINNERS (Universal)

Marlene Dietrich, John Wayne, Broderick Crawford, Mischa Auer

An imposing cast is offered in this romance of the South Seas. Base Rental $17.50.

SHE'S FOR ME (Universal)

Grace McDonald, David Bruce, Lois Collier, Leon Belasco, George Doleng

Plot revolves around the niece, Lois Collier, of a conservative attorney, her resentment at David Bruce's handling of her estate to curtail her splurging and her setting out to win his play boy chum, whom Bruce persuades her uncle to hire. **Available 6-17-45.** Base Rental $17.50.

*** SHE'S GOT EVERYTHING (RKO)**

Ann Sothern, Gene Raymond, Victor Moore, Helen Broderick

Miss Sothern is a "penniless debbie" who inherits her father's debts and creditors. Base Rental $17.50.

SING A JINGLE (Universal)

Alan Jones, June Vincent, Jerome Cowan, Betty Kean

Jones is ace radio singer known as Ray King but he travels under his given name when the army rejects him because of former football injury. **Available 7-7-45.** Base Rental $17.50.

SING YOUR WORRIES AWAY (RKO)

Bert Lahr, June Havoc, Buddy Ebsen

A tuneful farce about a slap-happy song writer, full of catchy song numbers and a wealth of laughs. Base Rental $17.50.

SKY GIANT (RKO)

Richard Dix, Chester Morris, Joan Fontaine, Harry Carey

A stormy friendship between experienced transport pilot, Richard Dix, and student flier, Chester Morris. Base Rental $17.50.

SMASHING THE RACKETS (RKO)

Chester Morris, Frances Mercer, Rita Johnson Bruce Cabot

A vital document that actually reveals the unwholesome soul of racketeering, and shows how it might be cured by cooperation between citizens and legal machinery is unfolded in dramatic fashion. Base Rental $17.50.

SO'S YOUR UNCLE (Universal)

Billie Burke, Donald Woods, Elyse Knox, Frank Jenkins

Young struggling playwright impersonates his wealthy bearded uncle and finds lightening changes hard on the nerves. **Available 6-3-45.** Base Rental $17.50.

THE SPELLBINDER (RKO)

Lee Tracy, Barbara Read, Allan Lane, Linda Hayes, Patric Knowles

This film reveals in vivid detail how tragic retribution comes to a criminal attorney when his flouting of justice unexpectedly involves his adored daughter. Base Rental $17.50.

THE SPOILERS (Universal)

Marlene Dietrich, Randolph Scott, John Wayne

Based on the best of Rex Beach's best-seller books, this raw, teeming saga of the Klondike brings action and excitement aplenty to the screen, rising in tension to the big climax fight scene. Base Rental $17.50.

*** SPRING PARADE (Universal)**

Deanna Durbin, Robert Cummings, Mischa Auer

Old Vienna is the locale of this film, a gay tale of the 90's. Base Rental $20.00.

*** SQUADRON LEADER X (RKO)**

Eric Portman, Ann Dvorak

Here's a melodrama with a highly original plot, taut with suspense and building to a smash climax. **Available 12/44.** Base Rental $17.50.

STAGE DOOR (RKO)

Katharine Hepburn, Ginger Rogers, Adolphe Menjou

A screen adaptation of the play by Edna Ferber and George Kaufman. Base Rental $17.50.

▼ THE STORM (Universal)

The importance of the wireless operator in upholding the modern traditions of the sea is emphasized in this stirring tale of two brothers and a pal who nurse the air waves. (Charles Bickford, Barton MacLane, Preston Foster, Tom Brown, Nan Grey, Andy Devine). Base Rental $15.00.

*** STORY OF VERNON & IRENE CASTLE (RKO)**

Fred Astaire, Ginger Rogers, Edna Mae Oliver

The real-life career of Vernon and Irene Castle. Base Rental $17.50.

*** SUED FOR LIBEL (RKO)**

Kent Taylor, Linda Hayes

Bullet-swift action, spine-chilling thrills, seat-gluing suspense and a delightful smartly dialogued love affair, these are the highlights in this gripping drama laid against a newspaper and radio background. Base Rental $17.50.

SUSPICION (RKO)

Cary Grant, Joan Fontaine, Nigel Bruce

Directed by Alfred Hitchcock, this suspense packed story is one of the most gripping and unusual ever seen on the screen. Base Rental $17.50.

▼ SUTTER'S GOLD (Universal)

The discovery of gold on his land in 1849 brought California's first multi-millionaire land-owner tremendous losses as the reckless prospectors swarmed in like a horde of locusts. Heroic drama, directed by James Cruze. (Edward Arnold, Lee Tracy, Binnie Barnes, Katherine Alexander.) Base Rental $17.50.

SYNCOPATION (RKO)
Adolphe Menjou, Jackie Cooper, Bonita Granville, Benny Goodman, Gene Krupa, Alvino Rey and others

The great romance of American rhythm, through the exciting years from ragtime to today's boogie-woogie — it tells of two youngsters who found each other through love. Features 7 great band stars! Base Rental $17.50.

*** THAT'S RIGHT, YOU'RE WRONG (RKO)**
Kay Kyser, Adolphe Menjou, May Robson, Lucille Ball

This film joyously pictures what happens when a renowned orchestra leader turns movie actor and goes Hollywood in a big way. Base Rental $17.50.

THAT CERTAIN AGE (Universal)

The perplexing problems of that certain 'teen age are brought to the fore by as charming a group of youngsters, headed by Deanna Durbin and Jackie Cooper, as ever were grouped in a picture. Base Rental $20.00.

SWING IT SOLDIER (Universal)
Ken Murray, Frances Langford, Don Wilson, Hanley Stafford

Back-stage mysteries of radio are candidly revealed in this music fun film. Base Rental $17.50.

*** SWING THAT CHEER (Universal)**
Tom Brown, Andy Devine, Ernest Truex, Robert Wilcox, Constance Moore

This film is highlighted by fast football action and campus romance. Base Rental $17.50.

*** SWISS FAMILY ROBINSON (RKO)**
Thomas Mitchell, Edna Best, Freddie Bartholomew

This film has captured the thrill of the famous, world's best-selling book. Base Rental $17.50.

▼ THERE'S ALWAYS TOMORROW (Universal)

How far should gentle indulgence go, as an expression of the love of parents for their children? This famous modern story by Ursula Parrott, is rated "family" and commended as "a splendid lesson for modern, thoughtless youth" — **and every** bit as much lesson for their parents. Cast includes **Frank** Morgan, Robert Taylor, Lois Wilson, Alan Hale. Base Rental $15.00.

THEY KNEW WHAT THEY WANTED (RKO)
Carole Lombard, Charles Laughton, William Gargan, Frank Fay

Pulitzer Prizewinner on the stage, this story—rich in human values and poignant in heart appeal—will long be remembered as a supreme experience in film thrills. Base Rental $17.50.

THIS LAND IS MINE (RKO)
Charles Laughton, Maureen O'Hara, Walter Slezak, George Sanders

This moving and inspiring drama of Nazi occupation of a French town is superbly acted by a top-flight cast. **Available 11/44.** Base Rental $17.50.

▼ THREE KIDS AND A QUEEN (Universal)

Wealthy maiden lady, badgered by avaricious relatives, is accidentally transferred to a crowded poor man's flat. She finds happiness there as an adopted member of the family, and wins her right to live as she pleases against the combined efforts of relatives, sanity experts, and kidnappers. May Robson, the "grand old lady of the screen," in splendid human role. Base Rental $15.00.

THREE SONS (RKO)
Edward Ellis, William Gargan, Kent Taylor

A man's belief in his city — his business and his family dynasty — all, he dreams, growing through the years. Base Rental $17.50.

TIGHT SHOES (Universal)
Binnie Barnes, Brod Crawford, Leo Carrillo

Adapted from Damon Runyon's short story classic the picture traces the hilarious adventures of Crawford after he insists upon buying shoes a size too small. Base Rental $17.50.

*** TIMBER (Universal)**
Leo Carrillo, Andy Devine, Dan Dailey, Jr.

The colorful story deals with wartime sabotage of our forests, the timber being used for important war contracts. Base Rental $17.50.

*** TOM BROWN'S SCHOOLDAYS (RKO)**
Sir Cedric Hardwicke, Freddy Bartholomew, Jimmy Lydon

This best loved book of three generations portrays the absorbing picture of English school life. Base Rental $17.50.

TOO MANY BLONDES (Universal)
Rudy Vallee, Helen Parrish, Lon Chaney, Jr., Eddie Quillan

In this outstanding film, Rudy Vallee portrays a young radio singer who finds that "when a man marries his troubles begin." Base Rental $17.50.

TOO MANY GIRLS (RKO)
Lucille Ball, Richard Carlson, Frances Langford, Hal Le Roy

Comedy, romance, girls and glamorous production are crammed into this tuneful story of collegiate capers. Base Rental $17.50.

*** TOP HAT (RKO)**
Fred Astaire, Ginger Rogers, Edward Everett Horton, Helen Broderick

Gay, romantic, tuneful and altogether delightful, this picture has everything — the superlative dancing of Rogers and Astaire — the lilting melodies of Irving Berlin, two brilliant comedians and an absorbing and plausible story. Base Rental $17.50.

*** TOP MAN (Universal)**
Donald O'Connor, Susanna Foster, Count Basie and his orchestra

This new comedy drama presents an unusual array of screen talent. "Top Man" deals amusingly and dramatically with wartime changes in the average American family. **Susanna sings** several numbers. **Available 3-17-45.** Base Rental $17.50.

▼ TOP OF THE TOWN (Universal)

"Lavishly produced, gay, diverting, musical extravaganza, in which lively music, modern singing, interesting dance numbers and spectacular scenery are blended together in an interesting fashion," writes the General Federation of Women's Clubs. Very large cast, with many headliners, including Doris Nolan, George Murphy, Hugh Herbert, Gregory Ratoff, Gertrude Niesen and Ella Logan. Base Rental $17.50.

*** TRAIL OF THE VIGILANTES (Universal)**
Franchot Tone, Warren William, Brod Crawford, Mischa Auer, Peggy Moran

Hilarious comedy, plenty of action, and unusual and beautiful scenic background. Base Rental $17.50.

*** TWO THOROUGHBREDS (RKO)**
Jimmy Lydon, Joan Brodel

A heart-touching drama of an orphan boy, a thoroughbred colt and a loyal girl who loves them both. Base Rental $17.50.

*** UNEXPECTED FATHER (Universal)**
Baby Sandy, Shirley Ross, Dennis O'Keefe, Mischa Auer

The story is about an orphaned baby who is taken in by a group of theatre employees. Base Rental $17.50.

UNEXPECTED UNCLE (RKO)
Anne Shirley, James Craig, Charles Coburn, Ernest Truex

This whimsical comedy scores with a touch of homespun humor the vagaries of a young millionaire engulfed in a sea of business responsibility. Base Rental $17.50.

* **VALLEY OF THE SUN (RKO)**
Lucille Ball, James Craig, Sir Cedric Hardwicke

Produced against the awe-inspiring background of the famous Taos Indian country in northern New Mexico, this picture presents a stark drama of the virgin West in the year 1868. Base Rental $17.50.

VIGIL IN THE NIGHT (RKO)
Carole Lombard, Brian Aherne, Anne Shirley

This is the film version of the famous novel by Dr. A. J. Cronin and portrays the dramatic adventures of two sister nurses, one courageous and loyal — the other frivolous and neglectful. Base Rental $17.50.

VIVACIOUS LADY (RKO)
Ginger Rogers, James Stewart, James Ellison

This story portrays the stormy love affair of a night club entertainer and a studious young professor, the action of which takes place in a sleepy little college town; a highly diverting comedy. Base Rental $17.50.

WEEK END FOR THREE (RKO)
Dennis O'Keefe, Jane Wyatt, Edward Everett Horton, Philip Reed

Rated as one of the year's funniest offerings this story revolves about the troubles of a young married couple with a too-enthusiastic house guest on their hands. Base Rental $17.50.

WEEK END PASS (Universal)
Martha O'Driscoll, Noel Barry, Jr., George Barbier, Andrew Tombes

As a ship builder Noel Barry, Jr., has just won a bonus and week end off with pay and yearns for quiet, a bed and a bath. On the way he meets Martha O'Driscoll, running away from her Pop's demands that she join the WAVES when she wants to join the WACS. **Available 8-18-45.** Base Rental $17.50.

▼ **WEST-BOUND LIMITED (Universal)**

Once railroading gets into a man's blood, nothing ever gets it out. Conscientious young telegrapher is robbed by clever gang, who make it appear that he was implicated. He escapes from the Law, becomes a tramp, but sacrifices his liberty to save the job and pension of an old towerman, with the connivance of every employe on the division—but one. Fine human story with a wealth of worth-while vocational and character training background beautifully woven in. (Lyle Talbot, Polly Rowles, Henry Hunter). Base Rental $15.00.

* **WHAT'S COOKIN' (Universal)**
Andrews Sisters, Woody Herman, Jane Frazee, Gloria Jean, Leo Carrillo

"Solid entertainment" describes this picture, full of laughs and lyrics. Base Rental $17.50.

* **WHEN JOHNNY COMES MARCHING HOME (Universal)**
Allan Jones, Jane Frazee, Gloria Jean, Donald O'Connor, Peggy Ryan, Four Step Brothers, Spitalny and his All Girl Orchestra

A hit parade of jive and joy stars with radio's miracle. Musical maids of charm. Base Rental $17.50.

▼ **WHEN LOVE IS YOUNG (Universal)**

After desperate struggle for success as singer, a snubbed "ugly duckling" of high school days returns to her home town a "glamorous swan." Based on Eleanore Griffin's novel, "Class Prophecy." Tender, humorous, and deeply human. (Virginia Bruce, Kent Taylor, Walter Brennan, Greta Meyer.) Base Rental $15.00.

WHEN THE DALTONS RODE (Universal)
Randolph Scott, Kay Francis, Brian Donlevy

Base on the exciting book of the same name, this saga of frontier America traces the careers of the Dalton boys as ranch owners who are led into spectacular crime by the persecutions of a land company. Base Rental $17.50.

* **WHERE DID YOU GET THAT GIRL (Universal)**
Helen Parrish, Charles Lang, Leon Errol

This film is a unique combination of mystery, music and romance. Base Rental $17.50.

* **WHO DONE IT (Universal)**
Bud Abbott, Lou Costello, Patric Knowles, William Gargan, Louise Allbritton

Abbott and Costello, Hollywood's best-liked and best patronized comedians are again on the run. Base Rental $20.00.

STAND BY
ON THE AIR

WOLF MAN (Universal)
Claude Rains, Warren William, Lon Chaney

Probably the finest cast ever assembled for a horror film furnish expert portrayals in this picture. Base Rental $17.50.

* **YOU CAN'T CHEAT AN HONEST MAN (Universal)**
W. C. Fields, Edgar Bergen, Charlie McCarthy, Constance Moore

Heaven help W. C. Fields! His crackpot family goes "Society" . . . his screwball business goes bankrupt . . . while Charlie goes a-feuding! Base Rental $17.50.

YOU CAN'T FOOL YOUR WIFE (RKO)
Lucille Ball, James Ellison, Robert Coote, Virginia Vale

How two young married people try to get together and live their own lives after being separated by mother-in-law trouble and general misunderstandings forms the theme of this comedy romance. Base Rental $17.50.

* **YOU'LL FIND OUT (RKO)**
Kay Kyser, Peter Lorre, Boris Karloff, Bela Lugosi

The screen's first musical mystery which combines sweet thrills and cold chills. Base Rental $17.50.

YOU'RE A LUCKY FELLOW MR. SMITH (Universal)
Alan Jones, Evelyn Ankers, Billie Burke

Excellent picture comedy. A self willed heiress marries a Private to save her inheritance when the train is stalled. Then finds it harder to get rid of him than was expected. **Available 4-22-45.** Base Rental $17.50.

* **YOU'RE NOT SO TOUGH (Universal)**
Nan Grey, Billy Halop, Bobby Jordan

In this film the Dead End Kids are taken off the city pavements and shown as itinerant crop workers in California. Base Rental $17.50.

* **ZANZIBAR (Universal)**
Lola Lane, James Craig

Graphic adventures of a white huntress in conflict with jungle beasts and African savages in the shadow of a flaming volcano! Base Rental $17.50.

ADDITIONAL MAJOR FEATURE PROGRAMS

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Location Approvals Are Required on These Subjects

Sufficient short subjects are included to make up complete one and a half hour shows.

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PICTURES LISTED ON THIS PAGE AVAILABLE NOW EXCEPT WHERE OTHERWISE SPECIFIED

RENTAL RATES ON APPLICATION

●

*** ADVENTURES OF A ROOKIE (RKO)**
Wally Brown, Alan Carney
A slam-bang comedy with a riotously funny new pair of comics!

*** AROUND THE WORLD (RKO)**
Kay Kyser, Mischa Auer, Joan Davis, Alan Carney, Wally Brown
Available .... **Shut-ins 1/45, U.S.O. 10/44**
The plot is concerned with a globe-trotting tour of American bases in foreign lands, on which Kay Kyser takes his band and a bevy of beauties to raise the morale of the boys.

*** CORVETTE K-225 (Universal)**
Randolph Scott, James Brown, Ella Raines
Filmed with the cooperation of the Royal Canadian Navy, this is one of the most stirring documentary screen thrillers ever portrayed.

*** CRAZY HOUSE (Universal)**
Olsen and Johnson, Cass Daley, Martha O'Driscoll, The De Marcos, Count Basie
Five bands, seventeen acts . . . and Olsen and Johnson too.

*** THE FALCON IN DANGER (RKO)**
Tom Conway, Jean Brooks, Elaine Shepard, Amelita Ward
Thrills and mystery airliner crash, kidnapping of two passengers — false trail to crooks — dare-devil exploits — romatic problems, all here with the famous Falcon.

FALLEN SPARROW (RKO)
John Garfield, Maureen O'Hara, Walter Slezak
Spy story full of drama and suspense.

FIGHTING FRONTIER (RKO)
Tim Holt, Cliff Edwards (Ukelele Ike), Ann Summers
Available .... **U.S.O. 10/44**
A melodrama of the West, full of breathless suspense.

FIRED WIFE (Universal)
Robert Paige, Louise Albritton, Diana Barrymore, Walter Abel
This picture, a strikingly clever comedy-drama, detours daringly from the beaten path and the result is something to get excited about.

FLESH AND FANTASY (Universal)
Charles Boyer, Edward G. Robinson, Barbara Stanwyck
Flesh and Fantasy is definitely a "different" film with its strong sense of irony and a touch of the macabre.

*** FRONTIER BAD MEN (Universal)**
Robert Paige, Anne Gwynne, Diana Barrymore
This is a vigorous action melodrama featuring an outstanding cast in the colorful roles of old west characters.

GILDERSLEEVE ON BROADWAY (RKO)
Harold Peary, Billie Burke, Margaret Landrey, Michael Road
This time Gildersleeve really gets himself involved. He goes to Broadway with a druggists' convention.
Available Shut-in 11-44

*** HERS TO HOLD (Universal)**
Deanna Durbin, Joseph Cotten, Charles Winninger
FOR ARMED FORCES ONLY
Deanna plays a debutante who goes to work at an aircraft factory.

HIGHER AND HIGHER (RKO)
Michele Morgan, Frank Sinatra, Jack Haley
Available .... **Shut-ins 1/45, U.S.O. 10/44**
Higher and Higher is loaded with Rodgers and Hart tunes and plenty of talent to execute them. Frank Sinatra plays himself with competence and sings to satisfy his most devoted admirer.

*** HIS BUTLER'S SISTER (Universal)**
Deanna Durbin, Pat O'Brien, Franchot Tone
This Durbin picture can best be described as sheer delight. Music and romance are superbly blended in the finest of taste.

*** HIT THE ICE (Universal)**
Bud Abbott, Lou Costello, Ginny Sims
Overloaded with new comedy situations, this picture, the best vehicle these two stars have had, has an all-out action plot and a cast of skilled actors.

*** THE IRON MAJOR (RKO)**
Pat O'Brien, Ruth Warrick, Robert Ryan
Available .... **Shut-ins 12/44**
This film gives the versatile Pat O'Brien one of his finest roles in the part of the late Major Frank Cavanaugh, one of the nation's foremost football mentors.

ATTENTION SCHOOLS! — LOWER RATES TO *SCHOOLS WITH SMALL ENROLLMENT*

A LADY TAKES A CHANCE (RKO)

Jean Arthur, John Wayne, Charles Winninger,
Phil Silvers

Available .... **Shut-ins 10/44**

Laughter and lively romance as Jean Arthur, New York clerk, tours the west by bus, meets the right guy, but he doesn't know it. It takes persuasion and troubles to pull the right answer.

LARCENY WITH MUSIC (Universal)

Allan Jones, Kitty Carlisle, Leo Carrillo

An ingenious picture of night club folk and the colorful intrigue behind the scenes of a swank cabaret!

MEXICAN SPITFIRE'S BLESSED EVENT (RKO)

Lupe Velez, Leon Errol, Elizabeth Risdon

A frantic search for a non-existent baby.

Mr. LUCKY (RKO)

Cary Grant, Laraine Day, Charles Bickford,
Gladys Cooper, Alan Carney

Available .... **FOR ARMED FORCES ONLY**

"Mr. Lucky" tells an unusual and highly entertaining story of a romance between an earnest socialite welfare worker and a carefree gambler. The two stars are at their best in a tug-of-love to see who's hardest to get.

NEVER A DULL MOMENT (Universal)

The Ritz Bros., Frances Langford, Mary Beth Hughes

An impressive cast, furious comedy action and a dizzy pace characterize this film.

NORTH STAR — Produced by Samuel Goldwyn
Released by RKO

Anne Baxter, Dana Andrew, Walter Huston, Walter
Brennan, Ann Harding, Jane Withers, Erich Von Stroheim

Available .... **ARMED FORCES ONLY**
U.S.O. 10/44

A throbbing, vital, searing document of Nazi villainy and Russian heroism not often matched on the screen. Here indeed is drama, vivid and uncompromising—drama that will move audiences deeply.

*** PRIDE OF THE YANKEES**

Gary Cooper, Teresa Wright, Babe Ruth,
Walter Brennan

FOR ARMED FORCES ONLY

This film tells with unforgettable effect the story of a great American. Baseball forms the colorful background, but it is only incidental to the human story of a typical American girl and a great ball player and his courageous struggle upward from poverty.

*** ROOKIES IN BURMA (RKO)**

Wally Brown, Alan Carney

Available .... **Shut-ins 2/45, U.S.O. 11/44**

A fast and furious comedy filled with the sort of humor that appeals strongly to all types of audiences.

SHADOW OF A DOUBT (Universal)

Teresa Wright, Joseph Cotten, Macdonald Carey,
Henry Travers, Patricia Collinge

FOR ARMED FORCES ONLY

Beyond the shadow of a doubt. director Alfred Hitchcock has woven a magnificent mystery-romance. Here we have Teresa Wright as the girl in terror of her secret life and Joseph Cotten as the sinister man no girl could oppose — and live!

*** THE SKY'S THE LIMIT (RKO)**

Fred Astaire, Joan Leslie, Robert Benchley

Fred Astaire dances his way through a whirlwind story a Flying Tiger on leave, in play-boy clothes, crowding into one busy, merry ten day furlough, a lifetime of fun and thrills.

*** SPITFIRE — Presented by Samuel Goldwyn**
Released by RKO

Leslie Howard, David Niven, Rosamund John

FOR ARMED FORCES ONLY

One man died a hero's death in World War II several years before the war began. This was R. J. Mitchell, designer of the R.A.F.'s Spitfire fighter plane which won the battle of Britain. The story of a plane that saved an empire and the dream, the faith and the love behind its creation.

STAGE DOOR CANTEEN (United Artists)

Cast—Who's Who of the Stage and Screen

FOR ARMED FORCES ONLY

This film has everything; stars, showmanship and heart warming story!

*** TARZAN'S DESERT MYSTERY (RKO)**

Johnny Weismuller, Nancy Kelly, Otto Kruger

Available .... **Shut-ins 1/45, U.S.O. 10/44**

Here we have things happening so fast and furiously that Tarzan scarcely is given time to draw a deep breath as he applies his strength and primitive cunning to upsetting the plans of a Nazi agent to cause trouble between two important desert tribes.

*** TARZAN TRIUMPHS (RKO)**

Johnny Weismuller, Frances Gifford, Johnny "Boy"
Sheffield

First of a new film series of Tarzans, this one surpasses its predecessors in thrills, romance and human interest.

THEY GOT ME COVERED — A Samuel Goldwyn Production
Released by RKO

Dorothy Lamour, Bob Hope

FOR ARMED FORCES ONLY

A rousing riot of fun, espionage, blunder, romance and hilarious heroics starring that unbeatable team of Hope and Lamour.

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NEW P.R.C. FEATURES

The following new **P.R.C. Features** are being released at the rate of one each week commencing on Sept. 1st, 1944. Be the first in your community to book these fine subjects.

ISLE OF FORGOTTEN SINS
John Carradine, Gale Sondergaard. (Drama). 84 minutes.

HARVEST MELODY
Rosemary Lane, Johnny Downs, Eddie LeBaron's Orchestra. (Musical). 71 minutes.

CAREER GIRL
Frances, Langford, Edward Norris. (Musical). 69 minutes.

MINSTREL MAN
Benny Fields, Gladys George. (Musical).

SUBMARINE BASE
John Litel, Alan Baxter, FifiD'Orsay. (Melodrama). 66 minutes.

TIGER FANGS
Frank Buck, Duncan Renaldo, June Duprez. (Melodrama). 59 minutes.

JIVE JUNCTION
Dickie Moore, Tina Thayer, Gerra Young. (Musical). 64 min

NABONGA (Gorilla)
Buster Crabbe, Fifi D'Orsay, Barton MacLean. (Melodrama). 73 minutes.

MEN ON HER MIND
Mary Beth Hughes, Ted North, Eddie Norris. (Musical-Drama). 70 minutes.

DANGER! WOMEN AT WORK
Patsy Kelly, Mary Brian, Isabel Jewell. (Comedy). 61 minutes

THE GIRL FROM MONTERREY
Armida, Edgar Kennedy, Jack LaRue. (Comedy). 61 minutes.

THE AMAZING MR. FORREST
Edward Everett Horton, Otto Kruger, Jack Buchanan. (Farce-Comedy). 71 minutes.

LADY IN THE DEATH HOUSE
Jean Parker, Lionel Atwill, Douglas Fowley. (Mystery-Drama). 58 minutes.

WATERFRONT
John Carradine, J. Carrol Naish. (Melodrama).

THE WARNING

SEVEN DOORS TO DEATH

THE CONTENDER
Buster Crabbe, Arline Judge. (Melodrama).

THE MONSTER MAKER
J. Carrol Naish, Ralph Morgan. (Melodrama). 65 minutes.

MEN OF THE SEA
Wilfrid Lawson, Mary Jerrold. (Melodrama). 48 minutes.

SPELLBOUND

SHAKE HANDS WITH MURDER
Iris Adrian, Frank Jenks, Douglas Fowley. (Melodrama). 63 minutes.

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BUSTER CRABBE and his horse "FALCON"
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RUSTLER'S HIDEOUT

FUZZY SETTLES DOWN

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Jim Newill, Tex O'Brien and Hillbilly Band. Fightin' Singing' Hombres, roarin' over the range.

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GUNS OF THE LAW

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(E) ABRAHAM LINCOLN

10 reels (United Artists). Walter Huston, Una Merkel, Ian Keith. Salient events in the life of the Great Emancipator. Rental $15.00. In Series $12.50. K.

ADVENTURE GIRL — (7-Reel)

Joan Lowell's story of her thrilling adventures in search of **The Square Emerald,** in "The City of the Dead" from the book of the same name. To those who love thrilling adventures, this pictures is "Tops". Rental $12.50. In Series $10.00.

ADVENTURES IN HEARTS

7 reels (PRC). Jack LaRue and Mary Healy. An expose of the annulment game that has shocked the nation. Rental $12.50. In Series $10.00 PR.

(E) ADVENTURES OF THE BASKERVILLES

7 reels (United Artists). Arthur Wonter. Sherlock Holmes and Dr. Watson live again in this great story. Rental $12.50. In Series $10.00 N.

(E) ADVENTURES OF CHICO (THE)

6 reels. See the fight between an 8 oz. bird and a deadly snake, in this most unusual picture of the year. Rental $15.00. In Series $12.50 K.

ADVENTURES OF THE MASKED PHANTOM (THE)

6 reels. Starring "The Dog with the Human Brain." Rental $12.50. In Series $10.00 N.

(E) ADVENTURES OF "TOM SAWYER" (THE)

Tom Sawyer is the immortal American boy, beloved by all who have thrilled to his fabulous adventures in the pages of Mark Twain's memorable classic. In this sensitive production each of the lovable characters—Tom, Huck Finn, Injun Joe, Becky Thatcher and Aunt Polly—is vividly brought to life. It is America's best loved story . . . America's warmest tradition. Cast: Tom Kelly, May Robson, Walter Brennan. Rental $17.50. In Series $15.00 R.

ADVENTUROUS KNIGHTS

6 reels. David Sharpe, Mickey Daniel, Getrtrude Messenger, Mary Kornman. Comedy with music. Rental $6.00 A.

(E) AFRICAN HOLIDAY

6 reels. In this amazing film of the African jungle, we are shown for the first time, animals, peoples, and mysterious rituals never before seen on the screen. Rental $15.00. In Series $12.50 K.

(E) AFTER MEIN KAMPF

7 reels. A superb cast in "the film Hitler fears." Among its many highlights are the Reichstag fire, the trial of Van der Lubbe, and the story showing how the Nazis rose to power. Rental $15.00. In Series $12.50 K.

(E) ALGIERS

10 reels (United Artists). Charles Boyer, Hedy LaMarr, and Alan Hale. When an international jewel thief falls in love with a tourist, hairbreadth esapes follow. Rental $17.50. In Series $15.00 R.

ALIAS BULLDOG DRUMMOND

9 reels (Gaumont-British). Jack Hulbert. Comedy thriller, burlesqueing the super-detective theme. Rental $12.50. In Series $10.00 N.

AMATEUR CROOK

7 reels. Herman Brix. An action story. Rental $6.00 A.

AMAZING ADVENTURE (The)

8 reels. Cary Grant and Mary Brian. Too much money made him sick, and he had to go broke to find happiness. Rental, $12.50. In Series, $10.00 N.

ANYTHING FOR A THRILL

6 reels. Frankie Darro. Action drama. Rental $6.00 A.

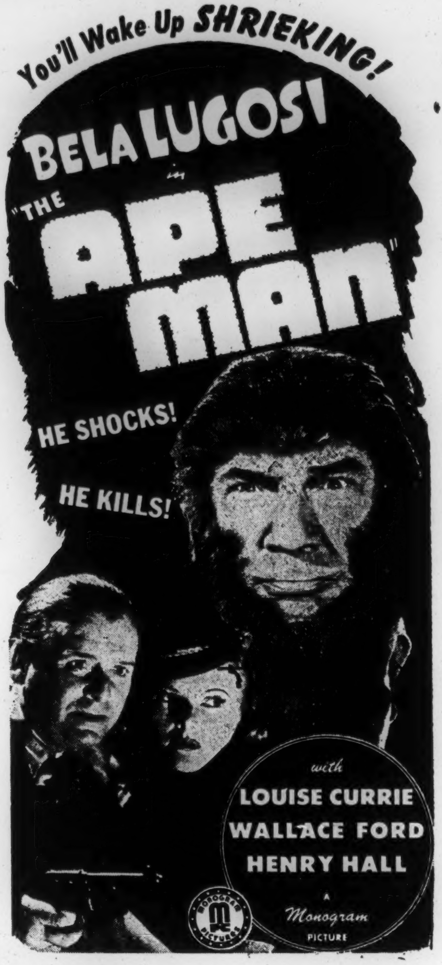
APE (The)

8 reels (Monogram). Boris Karloff. By day he labors for humanity. By night, his hobby is DEATH. Rental $12.50. In Series $10.00 N.

ATTENTION SCHOOLS! — LOWER RATES TO *SCHOOLS WITH SMALL ENROLLMENT*

APE MAN (The)

7 reels. Bela Lugosi, Louise Curry, Wallace Ford, Henry Hall. The Number One horror star at his terrifying best, in the weirdest tale of the year — a tale of terror you won't forget. Rental, $15.00. In series, $12.50 K.



(E) APRIL ROMANCE

8 reels. Richard Tauber, noted European tenor. Here against a background of palaces, Royal Regiments and magnificent ballroom scenes, we hear the choice music of Schubert sung and played. Rental $12.50. In Series $10.00 N.

ARMY MYSTERY

7 reels (PRC). Eric Linden, Anne Doran, Constance Worth, Weldon Heyburn. Army chemists catch a ring of spies. Rental $12.50. In Series $10.00 PR.

(E) ATLANTIC FLIGHT

8 reels (Monogram). Dick Merrill, Jack Lanbie, Paula Stone. A thrilling story of the skyways. Rental $9.00. In Series $7.50 L.

BABY FACE MORGAN

Robert Armstrong, Richard Cromwell, Mary Carlisle, Chick Chandler. They called him a "killer" and everyone believed it —until—"the boy from the country" woke up and started the fireworks. An irresistible comedy-drama. Rental $12.50. In Series $10.00 PR.

(E) BACK DOOR TO HEAVEN

8 reels (Paramount). Wallace Ford, Patricia Ellis, Stuart Erwin. A boy born on the wrong side of the tracks seeks love, honor, respect and success. Rental $15.00. In Series $12.50 K.

BAD BOY (The)

7 reels. Johnny Downs, Rosalind Keith. A moving story of a bad boy who learned that crime does not pay. Rental $10.00. In Series $7.50 M.

BADGE OF HONOR

7 reels. Buster Crabbe. Two powerful dailies are fighting for supremacy, and right triumphs. Rental $7.50. In Series $6.00 C.

BALLOT BLACKMAIL

7 reels (PRC). Joan Woodbury, Jack LaRue and Linda Ware. A thunderous and dynamic story dealing with ballotbox stealers. Rental $12.50. In Series $10.00 PR.

BANK ALARM

6 reels (Grand National). Conrad Nagel, Elinor Hunt, Vince Barnett, Wilma Francis. A Federal inspector unravels a kidnapping and robbery. Rental $6.00 A.

BAREFOOT BOY

7 reels (Monogram). Jackie Moran, Ralph Morgan, Marcia May Jones, Claire Windsor. Glorifying the American boy is the business of this film. Rental $12.50. In Series $10.00 N.

BARS OF HATE

6 reels. Regis Toomey, Sheila Terry, Snub Pollard. A Peter B. Kyne fast-moving mystery comedy drama. Rental $4.00 B.

BAT WHISPERS (The)

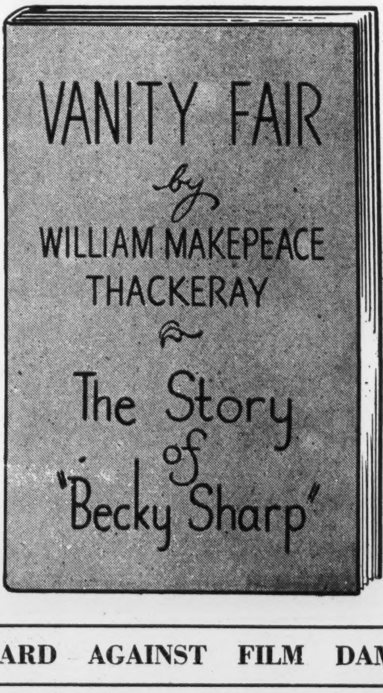
10 reels (United Artists). Chester Morris and Una Merkel. Spine-tingling adventures in a house of terror. Rental $12.50. In Series $10.00 N.

BATTLE OF GREED

6 reels. Tom Keene in a drama of the settling of Virginia City, and discovery of the famous Comstock lode. Rental $12.50. In Series $10.00 N.

(E) BECKY SHARP

8 reels. Miriam Hopkins, Alan Mowbray, C. Aubrey Smith, in beautiful NATURAL COLOR sequences. This notable motion picture brings William M. Thackeray's great historical novel, "Vanity Fair", to the screen. This picture will entertain you —at the same time it will impress on your mind the deep significance of England's victory at Waterloo. Rental $20.00 per day. In Series $17.50. Apply for Weekly Rate.



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(E) **BEFORE THE WHITE MAN CAME**
6 reels. All-Indian cast. The story of America before the coming of the white man. Rental $12.50. In Series $10.00 N.

BEHIND GREEN LIGHTS
8 reels. Norman Foster. Thrilling G-man story. Rental $6.00 A.

BEHIND PRISON WALLS
Allen Baxter, Tully Marshall, Gertrude Michael. It took jail to "wize 'em up." He went in to the clink to prove his dad was wrong. His dad left jail to prove his son was right. Rental $12.50. In Series $10.00 PR.

BELOW THE DEADLINE
7 reels. Cecilia Parker. Detective drama. Rental $6.00 A.

BEWARE THE LADY
7 reels (PRC). Neil Hamilton, June Storey. Something startling happens when an innocent girl is sentenced to be shot, at sight. Rental $12.50. In Series $10.00 PR.

(E) **BEYOND BENGAL**
7 reels. Countless animals of the rarest kind are shown in their native habitat, in this picture of the Malayan Peninsula. Rental $12.50. In Series $10.00 N.

BIG CHANCE (The)
7 reels. John Darrow, Myrna Kennedy, Mickey Rooney and Natalie Moorhead. Action drama. Rental $6.00 A.

(E) **BIG DRIVE (The)**
Story of the First World War. Excellent for comparison purposes. Rental $10.00. In Series $7.50 M.

BIG MONEY
8 reels. James Gleason, Eddie Quillen, Robert Armstrong. Mighty indictment against gambling. Rental $4.00 B.

BIG TIME OR BUST
7 reels. Regis Toomey and Gloria Shay. A career in show business versus home life. Rental $7.50. In Series $6.00 C.

BIG TOWN
6 reels. Lester Dale, Frances Dade. Newspaper melodrama. Rental $4.00 B.

(E) **BLACK BEAUTY**
7 reels (Monogram). Anna Sewell's immortal story of a horse. Rental $9.00. In Series $7.50 L.

BLACK DOLL (The)
7 reels (Universal). Nan Grey, Donald Woods, Edgar Kennedy, Wm. Lundigan. A black doll appears and disappears out of nowhere. Scares and thrills to the finish. Rental $12.50. In Series $10.00 N.

BLACK DRAGONS
7 reels. Bela Lugosi. Master of a thousand horrors. See him pit his terror against Japan's treacherous agent, in the U.S.A. (LT.) Rental $15.00. In Series $12.50 K.

BLACK GOLD
6 reels. Frankie Darro, Gloria Shay, Roy Mason, in a Peter B. Kyne story of the independent oil operators. Rental $6.00 A.

BLACK LIMELIGHT
8 reels. Raymond Massey, Joan Marion, Walter Hudd. A very absorbing murder mystery, with many surprise twists and an abundance of suspense. Rental 12.50. In Series $10.00 N.

THE BLACK RAVEN
George Zucco, Noel Madison, Wanda McKay. Who was the Black Raven? You will chill. You will thrill. You will laugh and you will shudder before you find out in this peer of mystery stories. Rental $12.50. In Series $10.00 PR.

(E) **BLAZING BARRIERS**
8 reels (Monogram). CCC heroes fighting forest fires. Thrilling fire scenes. Rental $9.00. In Series $7.50 L.

(E) **BLOCKADE**
9 reels (United Artists). Madeleine Carroll, Henry Fonda, Leo Carrillo, John Haliday. An exciting drama of spies, the high seas, and the running of a blockade in the recent Spanish civil war. Rental $17.50. In Series $15.00 R.

BLONDE COMET
7 reels (PRC). Virginia Vale and Robert Kent. There's blonde dynamite at the wheel, as this mile-a-minute darling burns up the track. Rental $12.50. In Series $10.00 PR.

BOHUNKS
4 reels. Starring Laurel and Hardy. Rental $15.00. In series $12.50 K.

BOMBS OVER BURMA
7 reels (PRC). Anna May Wong, Noel Madison, Leslie Denison. On the road to Chungking an innocent looking Chinese school teacher spots the Jap spy and clears the Burma Road for the supplies to come through. Rental $12.50. In Series $10.00 PR.

BORDER PATROLMAN
7 reels (20th Century-Fox). George O'Brien and Polly Anne Young. An exciting conflict between a headstrong, wealthy girl and a border patrolman whose regulations she ignored. Rental $12.50. In Series $10.00 N.

(E) **BORN FOR GLORY**
9 reels (Gaumont-British). John Mills, Betty Balfour and Barry Mackay. Service in the British Navy, as presented with the official sanction of the British Admiralty. Rental $12.50. In Series $10.00 N.

BORN TO FIGHT
7 reels. Frankie Darro, Kane Richmond. Action story. Rental $6.00 A.

BORN TO GAMBLE
7 reels. Onslow Stevens, H. B. Warner, Eric Linden and Lois Wilson. Four sons struggle to conquer an inherited love of gambling. Rental $9.00. In Series $7.50 L.

BORROWED HERO
7 reels. Alan Baxter, Florence Rice, Constance Worth. It's tough to be a hero. A crime-busting Special Prosecutor heads for triple trouble with a jealous sweetheart, a manhunting blonde and a gun-toting underworld moll on his trail. It's excitement-packed, romance-loaded entertainment. (LT.) Rental $15.00. In Series, $12.50 K.

BOSS FOREMAN
8 reels (PRC). Henry Armietta, Iris Meredith, Robert Baldwin. A melodrama of racketeers, done in humorous style and background, with plenty of laughs and situations. Rental $12.50. In Series $10.00 PR.

BOSS OF THE BIG TOWN
Florence Rice, John Litel, H. B. Warner, John Miljan. A smart newspaper girl, a hardboiled market manager, and a little child made them fight side by side to avenge a great wrong done to an entire city. Crammed full of action. Rental $12.50. In Series $10.00 PR.

BOWERY AT MIDNIGHT
7 reels. Bela Lugosi, John Archer, Wanda McKay. Street of a thousand terrors, the eerie shadows of New York's notorious Bowery, become the hunting ground of a homicidal monster. It's HORRIFIC. Rental $15.00. In Series $12.50 K.

BOWERY BLITZKRIEG
East Side Kids. Round after round of excitement and mystery, with boxing gloves on, or off, as these toughies help the police get their man, (LT.) Rental $15.00. In Series $12.50 K.

BOY OF THE STREETS
9 reels (Monogram). Jackie Cooper, Maurine O'Connell. Awarded the Parents' Magazine medal for the best picture of the month. This story reveals a boy's fight to find himself in the great city's slum. Rental $12.50. In Series $10.00 N.

BOYS OF THE CITY
7 reels (Monogram). The famous "East Side" kids. A story of city life in the crowded streets. Rental $12.50. In Series $10.00 N.

BOYS' REFORMATORY
6 reels (Monogram). Frankie Darro and Frank Withers. A good boy pretends to be bad, so he can break up a racket. Rental $9.00. In Series $7.50 L.

(E) BREAKING THE ICE
8 reels (RKO). Bobby Breen, Charles Ruggles and Dolores Costello. Tommy Martin gets work at an ice-skating rink, and in an elaborate skating ballet makes a hit with his singing, which bring radio and concert opportunities — but re refused them all in order to help his mother. Rental $15.00. In Series $12.50 K.

(E) BRIDES OF SULU
6 reels. Depicting the life of the Moro People on the Sulu Island—part of the Philippine Group. Rental $10.00. In Series $7.50 M.

BRIDGE OF SIGHS
7 reels. Onslow Stevens, Jack LaRue, Walter Byron. Thrilling human interest story. Rental $4.00 B.

BRILLIANT MARRIAGE
7 reels. Joan Marsh, Ray Walker. Ursula Parrott's amusing novel on the screen. Rental $4.00 B.

BROADWAY BIG SHOT
7 reels (PRC). Halph Byrd, Virginia Vale, Wm. Halligan. He was such a hot news hound, they sent him to prison to get an "inside" story. Rental 12.50. In Series $10.00 PR.

BROADWAY LIMITED
Victor McLaglen, Denis O'Keefe, Marjory Woodworth, Patsy Kelly, Leonid Kinsky, George E. Stone. "Hello Broadway, Goodbye Blue." Here comes the Screen's FUNNIEST SCREAMLINED JOYRIDE. The laughs are LOUD, the lines are LOONY, the plot's a PANIC, when this mile-a-minute LAUGH CARAVAN gets going on your screen. Rental $17.50. In Series $15.00 R.

BROKEN DREAMS
7 reels (Monogram). Randolph Scott, Martha Sleeper and Joseph Cawthorne, with Beryl Mercer. A story on the order of "Sorrell and Son." Rental $9.00. In Series $7.50 L.

BROKEN MELODY
7 reels. Merle Oberon, John Garrick. He is sentenced to Devil's Island, but escapes. Rental $7.50. In Series $6.00 C.

BROWN BOMBER
5 reels. Remarkable story of the rise of Joe Louis. Rental $12.50. In Series 10.00 N.

BURIED ALIVE
7 reels. Beverly Roberts and Edward Earle. He walked his last mile, but death refused to accept him. Rental $9.00. In Series $7.50 L.

BURLESQUE ON "CARMEN"
5 reels. Charlie Chaplin. His comical capers, set to fine musical effects. Rental $10.00. In Series 7.50 M.

BURNING GOLD
6 reels (Republic). Bill Boyd and Judith Allen. In flame-swept oil fields, he conquered dynamite and fire. Rental $9.00. In Series $7.50 L.

BY APPOINTMENT ONLY
7 reels. Lew Cody, Eileen Pringle, Sally O'Neil. Excellent human interest story. Rental $4.00 B.

CALIFORNIAN (The)
(Or, The Gentleman from California.) 7 reels (20th Century-Fox). Ricardo Cortez, Marjorie Weaver, Katherine De Mille. Harold Bell Wrights story of California's scarlet days of '49. Rental $12.50. In Series $10.00 N.

CALL OF THE WILDERNESS
6 reels. Caesar, the Wolf Dog, and Francis McDonald. The story of animal life in the primitive, unconquered regions in America's great Northwest. Rental $10.00. In Series $7.50 M.

CALLING ALL CARS
7 reels. Jack LaRue, Jack Norton. A police drama. Rental $6.00 A.

CALLING OF DAN MATHEWS
7 reels (Columbia). Richard Arlen in the great story by Harold Bell Wright of the militant clergyman who crusades to clean up the old town. Rental $10.00. In Series $7.50 M.

CAPTAIN CALAMITY
8 reels (Grand National). George Houston and Mary Nixon. Adventures in the South Seas, in search of old Spanish hidden treasures. Rental $7.50 M. In Series $6.00 C.

CAPTAIN CAUTION
9 reels (Hal Roach). Victor Mature, Louise Platt, Leo Carrillo, Bruce Cabot. By author of "Northwest Passage." The strangest trio that ever sailed the seven seas—an ardent lover, a romantic rogue, an ex-privateer. They struck terror into the hearts of men and captured the hearts of women. Rental $17.50. In Series $15.00 HR.

CAPTAIN FURY
8 reels (Hal Roach Production). Brian Aheren and Victor MacLaglen. The reckless adventure, the danger-filled romance of this great character, in the bush country of Australia. Rental $17.50. In Series 15.00 R.

CAREER GIRLS
A surprise cast. Send for descriptive circular. Rental $12.50. $10.00 in series PR.

CARNIVAL LADY (The)
7 reels. Boots Mallory in a humorous story of realism, in a carnival background. Rental $10.00. In Series $7.50 M.

(E) CARYL OF THE MOUNTAINS
6 reels. Rin Tin Tin Jr. is the hero in this fine Northwest Mounted story. Rental $9.00. In Series $7.50 L.

(E) CATHERINE THE GREAT
10 reels (United Artists). Douglas Fairbanks, Jr. and Elizabeth Bergner. A great ruler who could not govern her own heart. Rental $15.00. In Series $12.50 K.

CAT'S PAW (The)
12 reels (20th Century-Fox). Amusing Chinese background, followed by adventures in America. Rental $15.00. In Series $12.50 K.

(E) CAVALCADE OF CIVILIZATION
5 reels. Wm. Farnum in a dynamic blast against the war-monger and the would-be dictator. Rental $12.50. In Series $10.00 N.

CAVALCADE OF LAUGHS
8 reels. Charlie Chaplin. This is a revival of four of Charlie Chaplin's best 2-reel comedies, with appropriate music and sound effects. The four comedies are "Dough and Dynamite," "His Trysting Place," "Caught in a Cabaret," "His Prehistoric Past." Rental $12.50. In Series $10.00 N.

CHAMBER OF HORRORS

7 reels (Monogram). Leslie Banks, Lilli Palmer, in Edgar Wallaces great thriller. Behind the door with seven locks, the most fiendish killer plans new tortures. Rental $12.50. In Series $10.00 N.

CHANDU AND THE MAGIC ISLANDS

7 reels. Bela Lugosi and Clara Kimball Young. See Chandu and his death-defying struggle with the Sacred Tiger, and his breath-taking escape from the torture chamber. Rental $10.00. In Series $7.50 M.

CHASING TROUBLE

7 reels (Monogram). Frankie Darro, Marjorie Reynolds, Frankie tries to be nice for a change, but finds it does not pay in his situation, so he gets "tough" again. Rental $12.50. In Series $10.00.

CHEATERS

7 reels. Bill Boyd, Dorothy Mackaill, June Colyer. Heart throbs and hair-raising suspense, in a keen, expertly-written story by Fanny Lea. A society confidence man regenerated by an "ugly ducking." Rental $12.50. In Series $10.00 N.

(E) CHEERS FOR MISS BISHOP

9 reels. Martha Scott, William Gargan, Sidney Blackmer, Dorothy Peterson, Sterling Holloway, Marsha Hunt. The intensely interesting story of a school teacher, from her first class to her retirement. She thought her life a failure, but her ex-pupils knew it was a great success. Rental $17.50. In Series $15.00 K.

CHEERS OF THE CROWD

7 reels. Irene Ware, Harry Holman, Russel Hopton, Bradley Page. A press agent brings an old theatrical production to life, and meets with strange adventures. Rental $7.50. In Series $6.00 C.

(E) CHILDREN OF THE WILD (Grand National)

Joan Valerie, James Bush, LeRoy Mason, Gill L'Estrange, "Goldie" the Eagle, and "Silver Wolf." An outdoor picture with animals and birds, suitable for any audience. See sensational kidnap of baby by an enraged eagle. Ferocious battle in which feathered fury fights man and dog. 50-foot dive by beautiful girl to escape from ravenous mountain lions. Man against nature in terrible forest fires. These and 100 other thrills in a tale of heroism and romance amid the Rocky's scenic wonders. 7 reels. Rental, with shorts, $12.50. In Series $10.00 N.

CHINATOWN AFTER DARK

6 reels. Rex Lease, Barbara Kent, Frank Mayo. Mystery story of Chinatown. Rental $4.00 B.

(E) CHU CHIN CHOW

11 reels (Gaumont-British). Fritz Kortner, Anna Mae Wong, George Robey. A highly imaginative, lavish presentation of the absorbing tale of "Ali Baba and the Forty Thieves." Rental $12.50. Series $10.00 N.

CHUMP AT OXFORD

7 reels (A Hal Roach Production.) The uproar starts when Laurel and Hardy think Alma Mater is a Blonde! Rental $17.50. In Series $15.00 HR.

CIPHER BUREAU

7 reels. A story of fifth columnists, foreign spies and un-American activity groups of all kinds; and how Uncle Sam's counter espionage agents brave death and danger to unmask them. Leon Ames, Charlotte Wynters, Joan Woodbury, Don Dillaway. Rental with two reels shorts $12.50. In Series $10.00 N.

CIRCUS SHADOWS

7 reels. Dorothy Wilson, Kane Richmond, Russell Compton. A circus drama. Rental $6.00 A.

CITY LIMITS

7 reels (Monogram). Frank Craven, Sally Blaine, Ray Walker in an hilarious comedy with whirlwind action. Rental $9.00. In Series $7.50 L.

CITY OF LOST MEN (The)

8 reel. George "Gabby" Hayes, Claudia Dell, Kane Richmond, William Boyd, Joseph Swickard. A mystery story that out-monsters Frankenstein, out-thrills King Kong, weirder than Dr. Jekyll and Mr. Hyde, more spine-chilling than Dracula. Rental $12.50. In Series $10.00 N.

CITY OF MISSING GIRLS

7 reels. H. B. Warner, Astrid Allwyn. An expose of the "talent school" racket. Rental $12.50. In Series $10.00 N.

CITY OF SILENT MEN

Frank Albertson, June Lang, Jan Wiley. An intense melodrama about men whom the world shuns. Silent men from behind prison walls, who had paid their debt to society, and asked only the chance to start life over again. A startling expose of society's inhumanity to exconvicts who try to go straight. Rental $12.50. In Series $10.00 PR.

CLANCY IN WALL STREET

8 reels. Lucian Littlefield and Charles Murray. He take a flyer in Wall St. — and is rewarded with beginners' luck. Rental $9.00. In Series $7.50 L.

CLIPPED WINGS

6 reels. Lloyd Hughes, Rosalind Keith and Wm. Janey. An airplane story jammed full of thrills. Rental $10.00. In Series $7.50 M.

CLUTCHING HAND (The)

7 reels. Marion Shilling, Jack Mulhall, Wm. Farnum, Ruth Mix. A Craig Kennedy thriller that will make you grasp the back of your seat. Rental $10.00. In Series $7.50 M.

COCK OF THE AIR

Chester Morris, Matt Moore, Walter Catlett, Billy Dove, and Luis Alberni. An aviating Romeo who took a high flyer in love, and laughed at war. The "sky was the limit" with this dashing daredevil, who started out to fight the enemy, but lost in the battle of love. He left a trail of broken hearts, crashing through Europe, and bombing his way to Paris with LAUGHING GAS. **(For the Armed Forces Only).** Rental $15.00. In Series $12.50.

CODE OF THE MOUNTED

6 reels. Kermit Maynard in a James Oliver Curwood story. Rental $9.00. In Series $7.50 L.

CODE OF THE RED MAN (Monogram)

7 reels. Featuring "Thunder," king of the stallions, with Chief Tonto Thunder Cloud, Princess Bluebird, Rick Vallin. Another outdoor story suitable for any audience. A hurricane of thrills—a thundering herd of untamed savage steeds in a wild stampede, imperil Indian braves and battling buckaroos. 30 tribes of full-blooded Indians appear in this great film. Rental, with shorts, $12.50. In Series $10.00 N.

CONCERT IN TYROL (or, Symphony of the Mountains)

10 reels. The Vienna Choir Boys, on skiis, and also on the concert stage. German language with English titles. Great music. Rental $17.50. In Series $15.00 R.

CONDEMNED TO LIVE

7 reels. Ralph Morgan, Maxine Doyle, Russell Gleason, Mischa Auer. By day he works tirelessly among his less fortunate fellows. By night, some strange power takes hold of the body and soul of this kindly old man. Rental $10.00. In Series $7.50 M.

CONVICTS AT LARGE

7 reels. Ralph Forbes, Paula Stone. Police Drama. Rental $6.00 A.

CONVICT'S CODE

7 reels. Sidney Blackmer, Ben Alexander in a thrilling story of a football star, framed before his big game, but who devotes himself to clearing his good name. Rental $10.00. In Series $7.50 M.

CORDOBA MYSTERY (The)

7 reels. James Rennie, Judith Wood, Olive Borden. A Duke Ayres detective play that holds your interest to the last minute. Rental $10.00. In Series $7.50 M.

CORPSE VANISHES (The)

7 reels. Bela Lugosi. Behind the barred doors of his laboratory, this human devil performs fiendish experiments on the helpless victims of a secret, exotic vapor. (LT.) Rental $15.00. In Series $12.50 K.

(E) CORREGIDOR

Otto Kruger, Elissa Landi, Donald Woods, Ian Keith. General Douglas MacArthur, on the fall of Corregidor, made a statement that epitomizes in burning words the heroism of that epic event. Here is MacArthur's tribute: "Corregidor needs no comment from me. It has sounded its own story at the mouth of its guns. It has scrolled its own epitaph on enemy tablets. But through the bloody haze of its last reverberating shot, I shall always seem to see a vision of grim, gaunt, ghastly men still unafraid". Rental $12.50. In Series $10.00 PR.

CORSAIR

8 reels (United Artists). Chester Morris, Ned Sparks, Frank McHugh. A modern collegiate Captain Kidd, whipped his way to power on the high seas. Rental $10.00. In Series $7.50 M.

(E) COUNT OF MONTE CRISTO

13 reels (United Artists). Robert Donat, Elissa Landi, Louis Calhern in the film version of Dumas' greatest story. Rental $20.00. In Series $17.50 S.

COUNTY FAIR

8 reels (Monogram). John Arledge, Mary Lou Lender. Story of a young jockey who makes a living riding horses at county fairs. Rental $9.00. In Series $7.50 M.

(E) COURAGE OF THE NORTH

6 reels. John Preston and "Captain"—the king of dogs—both "get their man." Rental $10.00. In Series $7.50 M.

(E) COURAGEOUS DR. CHRISTIAN

Jean Hersholt, Dorothy Lovett, Robert Baldwin. The kindly doctor is interested in moving the disease-ridden and impoverished community of squatters' town to a model housing project. Defeat stalks his trail till a near tragedy awakens the community. Humor and romance makes this a picture for the whole family. Complete Program $15.00. In Series $12.50.

(E) COVERED WAGON (The)

6 reels. J. Warren Kerrigan, Lois Wilson, Ernest Torrence, Tully Marshall. The great classic of the wagon trails and the pioneers on their way to Oregon. Rental $9.00. In Series $7.50 L.

COWBOY MILLIONAIRE

7 reels (20th Century-Fox). George O'Brien, Edgar Kennedy. An American mine-owner, earning his grubstake as a dude rangler, has to take his title literally in dealing with a snooty English girl. Rental $12.50. In Series $10.00 N.

CRASHIN 'THROUGH DANGER

7 reels. Ray Walker, Sally Blaine. Action drama. Rental $6.00 A.

CRIME OF DR. CRESPI

7 reels (Republic Pictures). Eric von Stroheim in Edgar Allen Poe's weirdest tale. Rental 12.50. In Series $10.00 N.

CRIME PATROL (The)

7 reels. Ray Walker. Police hero drama. Rental $6.00 A.

CRIMES OF THE DARK HOUSE

7 reels. Todd Slaughter. Wilkie Collins' dramatic thriller set in the gold mines of Australia. Rental $10.00. In Series $7.50 M.

CRIMINAL INVESTIGATOR

7 reels. Robert Lowery, Edith Fellowes. Bullets blaze, headlines scream, when a cub reporter and a beautiful girl meet on the broadway of crime. (Lt.) Rental, $15.00. In Series, $12.50 K.

CRIMSON CIRCLE (The)

8 reels. Noah Beery, June Duprez, in Edgar Wallace's great story full of hurricane thrills. Rental $9.00. In Series $7.50 L.

CRIMSON ROMANCE

8 reels. Ben Lyon, Sari Maritza and Eric von Stroheim. What the first World War did to the friendship between an American boy and a young German. Rental $10.00. In Series $7.50 M.

(E) CRISIS (The)

8 reels. A human and stirring documentary film on the betrayal of the great democracy of Czechoslovakia. Rental $17.50. In Series $15.00 R.

CROOKED CIRCLE (The)

7 reels. Zasu Pitts, James Gleason. Everything from spooks to nuts, in a feast of thrills, chills and laughs. Rental $10.00. In Series $7.50 M.

CROSS-EXAMINATION

7 reels. H. B. Warner, Edmond Breese, Sally Blaine. Courtroom drama. Rental $6.00 A.

THE CRUSADER

8 reels. H. B. Warner, Ned Sparks and Evelyn Brent. The crusading district attorney's campaign for virtue and righteousness proves a boomerang when it strikes into his own home. Program $10.00. In Series $7.50 M.

(E) CUSTER'S LAST STAND

9 reels (United Artists). Rex Lease and Wm. Farnum. 10,000 wild buffaloes stampede in a spectacular scene in this historical drama. Rental $12.50. In Series $10.00 N.

(E) CZAR TO LENIN

7 reels. The story of Russia from 1910 to 1922. Rental $17.50. In Series $15.00 R.

DANCE BANDS

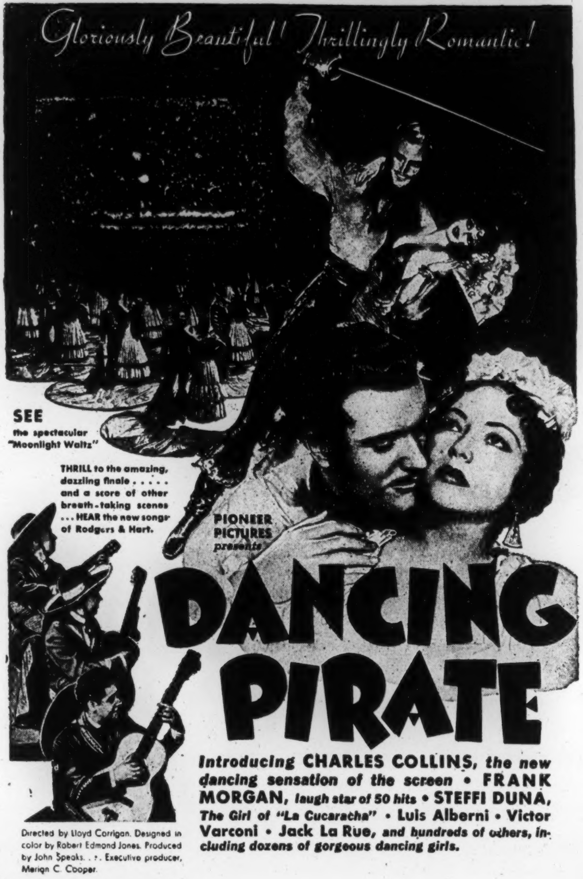
7 reels. Buddy Rogers, June Clyde. The story about two rival bands is one of the gayest musical treats, a veritable musical comedy of errors. Rental $9.00. In Series $7.50 L.

DANCE, GIRL, DANCE

7 reels. Alan Dinehart, Evelyn Knapp. Life of a vaudeville team. Rental $4.00 B.

DANCING PIRATE (The)

8 reels. In beautiful NATURAL COLOR. Steffi Duna, Luis Alberni, Victor Varconi, Jack La Rue, and Charles Collins, the new dancing sensation on the screen, as well as hundreds of others, including dozens of gorgeous dancing girls. See the spectacular moonlight waltz, thrill to the amazing, dazzling finale, and a score of other breath-taking scenes. Rental $20.00 per day. In Series $17.50, apply for Weekly Rates.


Gloriously Beautiful! Thrillingly Romantic!
SEE the spectacular "Moonlight Waltz"
THRILL to the amazing, dazzling finale . . . . . and a score of other breath-taking scenes . . . HEAR the new songs of Rodgers & Hart.
PIONEER PICTURES presents
DANCING PIRATE

Introducing CHARLES COLLINS, the new dancing sensation of the screen • FRANK MORGAN, laugh star of 50 hits • STEFFI DUNA, The Girl of "La Cucaracha" • Luis Alberni • Victor Varconi • Jack La Rue, and hundreds of others, including dozens of gorgeous dancing girls.

Directed by Lloyd Corrigan. Designed in color by Robert Edmond Jones. Produced by John Speaks. . . Executive producer, Merian C. Cooper.

DANGER AHEAD

6 reels. Lawrence Gray, Sheila Manners, Fuzzy Knight. Fights, chases, speed, comedy in this Peter B. Kyne story. Rental $6.00 A.

DANGER AT MIDNIGHT

6 reels. Beryl Mercer, Rex Lease, Alberta Vaughan, Human interest drama. Rental $6.00 A.

DANGER FLIGHT

7 reels (Monogram). A "Tale-Spin Tommy" story. This picture dramaticizes the building of modern airplanes and shows how the children of today come to understand aviation by learning it through models. Rental $10.00. In Series $7.50 M.

DANGEROUS SECRETS

7 reels. Paul Lucas. An action story, showing the evils of suspicion. Rental $10.00. In Series $7.50.

(E) DANIEL BOONE

8 reels (RKO). George O'Brien and Heather Angel in an epic of American adventure. Rental $17.50. In Series $15.00 R.

DARK HOUR (The)

7 reels. Hobart Bosworth. The perfect crime failed. Rental $9.00. In Series $7.50 L.

(E) DARK SANDS

8 reels. Paul Robeson and an all-Negro group of singers, with an Oriental setting. Rental $12.50. In series $10.00 N.

DAUGHTER OF THE REGIMENT

7 reels. Anny Ondra. A musical comedy with peppy martial music, tense dramatic situations, gorgeous costumes and beautiful scenery. Rental $7.50. In Series $6.00 C.

DAUGHTER OF THE TONG

6 reels. Evelyn Brent, Grant Withers, in a melodrama of Chinatown's underworld rating in a spine-chilling delight. Rental $9.00. In Series $7.50 L.

DAWN EXPRESS

7 reels. Michael Whalen and Anne Nagel (PRC). Trapped by a beautiful spy, he gave his life to save his pal and his country. Rental $12.50. In Series $10.00 N.

(E) DAWN TO DAWN

4 reels. A girl rebels against her tyrant father, and permits a wanderer to follow her home. The conflict between the girl and her father enables the popular star, Julie Hayden, to do the best bit of acting ever seen in a short drama. Rental $12.50 In Series $10.00 N.

DEADLY GAME (The)

7 reels (Monogram). Charles Ferrell, June Lang, John Miljan in a spy story, showing the work of the FBI in hunting the nation's foes. Rental $12.50. In Series $10.00 N.

DEAD MAN'S SHOES

7 reels (Monogram). Leslie Banks, Wilfred Lawson, Judy Kelly. He occupied a dead man's shoes. This story will thrill jaded audiences' appetites. Rental $15.00. In Series $12.50 K.

DEAD MEN TELL NO TALES

9 reels. Emelyn Williams. An exciting blood-chilling murder mystery. Rental $10.00. In Series $7.50 M.

DEAD MEN WALK

George Zucco, Mary Carlisle, Frederick Young, in a spine-thriller. A human devil comes from the tomb to strike down his victims. The very acme of HORROR pictures. Rental $12.50. In Series $10.00.

(E) DEALERS IN DEATH

7 reels. Rental $12.50. In Series $10.00 N.

DEATH FROM A DISTANCE

7 reels. Russell Hopton, Lola Lane. A strange, irresistible death ray brought sudden death to a great astronomer. Rental $7.50. In Series $6.00 C.

DEATH GOES NORTH

6 reels. Rin Tin Tin Jr. in a thrilling story of the north country. Rental $12.50. In Series $10.00 N.

DELINQUENT PARENTS

7 reels. Doris Weston and fine cast in the story of modern parents and modern children. Rental $10.00. In Series $7.50 M.

(E) DESERT VICTORY

Running time 62 minutes

Desert Victory is the story of the British Eighth Army's smashing victory at El Alamein and its triumphant advance across the desert to Tripoli. It begins in the grim days when Rommel's Afrika Korps had driven to within 60 miles of Alexandria, and from there follows the Eighth Army, through the suspense just before the zero hour, to the order, "Fire!" The progress and tactics of the battle are described by means of maps and commentary. The cameras move with the advance — Tobruk is re-taken, Benghazi is passed, Rommel fails to make his expected stand at El Agheila, and after 80 days the troops enter Tripoli, 1,300 miles from their starting point. Special service charge $2.50 first day.

DEVIL DIAMOND (The)

6 reels. Frankie Darro, Kane Richmond, June Gale. Grim tragedy thunders through the story of a diamond that dealt death. Rental $9.00. In Series $7.50 L.

DEVIL ON HORSEBACK

7 reels (Grand National). Lili Damita, Dell Campo, Fred Keating, Jean Chatburn. Colorful Mexican musical melodrama, packed with action, romance and generous comedy. Rental $9.00. In Series $7.50 M.

DIZZY DAMES

9 reels. lorine McKinney. Laurence Gray. Melody and mirth in this gayest musical romance. Rental $7.50. In Series $6.00 C.

DOOMED TO DIE

7 reels (Monogram). Boris Karloff, Marjorie Reynolds, Grant Withers. The cold-blooded bad man of crime is hot on the heels of a deadly million-dollar murder gang. Rental $15.00. In Series $12.50 K.

DOUBLE TROUBLE

7 reels. Hary Langdon and Charles Rogers. They're dippier than a roller-coaster, nuttier than a fruitcake. Two fugitives from a straight-jacket in a comedy riot that will hit your funnybone where it tickles most. It's a LAUGH TONIC, that the whole nation needs. (LT.) Rental $15.00. In Series $12.50 K.

DOUGHNUTS AND SOCIETY

7 reels. Louise Fazenda, Maud Eburne, Eddie Nugent. They were society folks, but they made a bigger success with their doughnut-making. Rental $7.50. In Series $6.00 C.

(E) DR. CHRISTIAN MEETS THE WOMEN

Jean Hersholt, Dorothy Lovett, Edgar Kennedy. Comedy and drama are mingled in this real-life romance between a city boy and a small town girl. Jean Hersholt as the small town physician always engaged in protecting the health of his community — this time against a press agent for a quack reducing specialist. Rental, Complete Program $15.00. In Series $12.50.

DRAGNET (The)

7 reels. Rod LaRocque, Marion Nixon. Police drama. Rental $6.00 A.

DRAGNET PATROL

6 reels. Glenn Tryon, Vera Reynolds, Marjorie Beebe. A sailor on shore leave. Rental $4.00 B.

(E) DRAKE THE PIRATE

8 reels. Rich story of the Elizabethan era, showing battles at sea, sacking Spanish towns, and destruction of the Spanish Armada. Rental $9.00. In Series $7.50 L.

DREAMING LIPS

9 reels (United Artists). Elizabeth Bergner and Raymond Massey. A story that will haunt audiences, with its fervor, beauty and miraculous acting. Rental $17.50. In Series $15.00 R.

(E) DRUMS IN THE DESERT

7 reels (Monogram). Ralph Byrd, Lorna Gray, Mantan Moreland in a pulsating story of love in the tropics. The film runs the gauntlet of thrills, breathtaking suspense and rapid-fire comedy. Rental $12.50. In Series $10.00 N.

(E) DRUMS OF AFRICA

7 reels (PRC). Buster Crabbe, Charles Middleton, Sheila Darcy. Man-eating jungle beasts on the trail of a sarong-clad "white beauty," saved by the wilderness doctor. Rental $12.50. In Series $10.00 PR.

DRUMS OF DESTINY

6 reels. Tom Keene. A true life picture of the dashing, courageous Andrew Jackson. Rental $12.50. In Series $10.00 N.

DU BARRY

8 reels (United Artists). Norma Talmadge, Conrad Nagel, Alison Skipworth, Wm. Farnum. Great story of this glamorous woman. Rental $4.00 B.

DUDE RANGER

7 reels. Young Easterner goes West to take possession of an inherited ranch, and proves an unsatisfactory (?) "Romeo" to the local reigning belle. Gorgeously photographed in Zion National Park. (George O'Brien.) Sol Lesser production. Rental $12.50. In Series $10.00 N.

DUKE OF THE NAVY

7 reels (PRC). Ralph Byrd, Veda Anne Borg. Pirate treasure, Spanish gold. There's a fortune waiting for these slap-happy seadogs (that's what they think). You'll think it's a ship full of laughs and thrilling action. Rental $12.50. In Series $10.00 PR.

DUMMY TROUBLE

7 reels (PRC). Ralph Byrd, Esther Muir, Harry Langdon and Betty Blythe. A riotous comedy drama in which a pair of wax models are mistaken for the real thing, and a couple of innocent husbands have a lot of explaining to do. Program $12.50. In Series $10.00 PR.

DYNAMITE DENNY

6 reels. J. Wisley, Blanche Mehaffey. Thrilling railroad drama. Rental $6.00 A.

THE EAGLE

6 reels. Rudolph Valentino, Vilma Banky, Louise Dressler. Modernized with music and sound. A revival of Rudolph Valentino's greatest picture — the picture that made film history. No man ever loved as did Valentino. He lives again in his most popular picture—a thrilling story that proves he was the greatest of all screen lovers. An excellent "old time movie" program is this feature with a Charlie Chaplin 2-reel comedy. Rental, for complete program, $12.50. In series $10.00 N.

EAST MEETS WEST

9 reels (Gaumont British). George Arliss, Arliss as a covetous, crafty Rajah of Rungay plays England against an Oriental power at the expense of both. Rental $12.50. In Series $10.00 N.

EAST SIDE KIDS

7 reels (Monogram). Vince Barnett and the original East Side Kids. Slum children can go straight, but these half-pint racketeers are headed for the death house. Rental $12.50. In Series $10.00 N.

EASY MILLIONS

7 reels. Skeets Gallagher, Myrna Kennedy, Noah Beery. He tried to live up to the 3 million dollars which his neighbors thought he inherited. Rental $7.50. In Series $6.00 C.

EASY MONEY

7 reels. Onslow Stevens, Kay Liniker. He starts to clean up a gang of fake accident racketeers, and finds his own brother one of the gang. Rental $7.50. In Series $6.00 C.

(E) EAT 'EM ALIVE

6 reels. An exciting American desert adventure showing thrilling fights between various animals. Rental $10.00. In Series $7.50 M.

(E) EDGE OF THE WORLD

7 reels. The theme of this story is the defeat of a strong, hardy people, faced by unsurmountable odds, on a lonely island of the Shetland group, off the northernmost tip of Scotland. Rental $17.50. In Series $15.00 R.

(E) ELEPHANT BOY

9 reels (United Artists). Sabu, the wonder boy. Based on "Toomai of the Elephants," by Rudyard Kipling, discloses the secrets of the unexplored jungle. Rental $15.00. In Series $12.50 K.

(E) ELLIS ISLAND

7 reels. Peggy Shannon, Donald Cooke, Joyce Compton, Johnny Arthur, Jack LaRue. An exciting story of three aliens and their efforts to escape deportation. Rental $10.00. In Series $7.50 M.

(E) EMPEROR JONES

9 reels. Paul Robeson, in Eugene O'Neill's masterpiece. He rose from Pullman Porter to "Emperor." Rich in drama, suspense. Rental $15.00. In Series $12.50 K.

ESCAPADE

7 reels. Sally Blaine, Anthony Bushiell. Mystery story. Rental $6.00 A.

(E) ESCAPE TO PARADISE

7 reels (RKO). Bobby Breen. Tropic days of gay adventure and magic nights of haunting music. Rental $15.00. In Series $12.50 K.

ETERNALLY YOURS

10 reels. Loretta Young, David Niven, Hugh Herbert, Billie Burke, C. Aubrey Smith, Broderick Crawford, Zasu Pitts, and Virginia Field. Love as mad as a runaway merry-go-round. Their married life was an idyll. The great Arturo never came home a minute later than 6 A.M. — and even his wife knew it was business that detained him, because he swore to be "eternally yours". Rental $17.50. In Series $15.00 R.

EVERGREEN

9 reels. Jessie Matthews. A frantic farce running the gamut from sophisticated comedy to slap-stick. Rental $12.50. In Series $10.00 N.

EVERYTHING IN RHYTHM

6 reels. Harry Roy ad his famous band, with a cast of approximately 200 musicians. Rental $9.00. In Series $7.50 L.

EVERYTHING'S ON ICE

8 reels (RKO). Irene Dare, Roscoe Karns, Edgar Kennedy. America's little Swing Sweetheart on the ice, and a thrilling ice carnival, with fun, romance and tunes. Rental $15.00. In Series $12.50 K.

(E) EXPLORERS OF THE WORLD

8 reels. Adventures in Asia, Africa, South Seas, the Antarctic, and the Amazon region. Rental $12.50. In Series $10.00 N.

FACE IN THE FOG

6 reels. June Collyer in Peter B. Kyne's story "The Great Mono-Miracle." A newspaper woman dares to write the truth. Rental $7.50. In Series $6.00 C.

FALLING IN LOVE

8 reels. Charles Farrell, Margot Grahame. Comedy drama. Rental $6.00 A.

FALSE PRETENCES

7 reels. Irene Ware, Russell Hopton, Sidney Blackmer, Betty Compson. Story of a modern Cinderella. Rental $4.00 B.

(E) FANGS OF THE WILD

6 reels. Dennis Moore, Martin Spellman, Rin Tin Tin, Jr. The crooks have trained their dog to kill and steal silver foxes from a number of silver fox farms. The hero of the picture, an F.B.I. man, finally locates the fur store which sells those stolen furs. There is only one other silver fox farm in the vicinity which has not lost any silver foxes so far. So the Hero, together with his dog, Rin Tin Tin, and a young boy friend, take a cottage near the silver fox farm and pose as tourists. Amazing animal pictures and excitement characterize this film. Rental $10.00. In Series $7.50 M.

FATAL HOUR (The)

8 reels (Monogram). Boris Karloff, Marjorie Reynolds, Grant Withers. The adventures of James Lee Wong, famous Chinese detective. Rental $10.00. In Series $7.50 M.

FATHER O'FLYNN

7 reels. Tom Burke in a range of Irish music and lilting tunes. from "Come Back to Erin" to the beautiful "Ave Maria." Rental $15.00. In Series $12.50 K.

FATHER STEPS OUT

7 reels (Monogram). Frank Albertson, Jed Prouty, Laura Gray, You will howl when the dignified millionaire tries a little panhandling, and gets the laugh. Rental $15.00. In Series $12.50 K.

FEDERAL AGENT

7 reels (Republic). Bill Boyd and Irene Ware. While the world trembled at a deadly menace, and nations fought for its possession, a G-man triumphed over a ring of spies. Rental $9.00. In Series $7.50 L.

FEDERAL BULLETS

7 reels (Monogram). A G-man drama, with a new angle story, and a surprise ending. Rental $10.00. In Series $7.50 M.

FEET FIRST

10 reels (Paramount). He tries to succeed as a shoe clerk in a Honolulu store. Hairbreadth escapes. Rental $15.00. In Series $12.50 K.

FEMALE FUGITIVE

7 reels (Monogram). Evelyn Venable, Craig Reynolds, Reed Hadley. The exciting story of a woman wrongly persecuted, wanted by the police for a crime she did not commit. Rental $10.00. In Series $7.50 M.

(E) FEROCIOUS PAL

6 reels. Kazan, the marvel dog, proves himself a true friend to man. Rental $12.50. In Series $10.00 N.

FIFTEEN WIVES

7 reels. Conway Tearle, Natalie Moorhead. A gripping problem in murder, with a radio setting. Rental $10.00. In Series $7.50 M.

FIFTY SECOND ST.

9 reels (United Artists). Ian Hunter, Pat Patterson, Zasu Pitts, Kenny Baker, Leo Carrillo. A drama of old New York, rich in music and comedy entertainment. Rental $17.50. In Series $15.00. Weekly rental $30.00. In Series $25.00 R.

(E) THE FIGHT FOR PEACE

7 reels. Rental $12.50. In Series $10.00.

FIGHTING COWARD (The)

6 reels. A young detective sacrificed a brilliant position rather than arrest his own father. Rental $7.50. In Series $6.00 C.

(E) FIGHTING FURY

6 reels. Here "the dog with the human brain" shows how he can fight for his master. Rental $10.00. In Series $7.50 M.

FIGHTING GENTLEMEN

7 reels. Wm. Collier, Jr. The hero fights a carnival sideshow challenger, and is knocked out. His comeback produces thrills galore. Rental $10.00. In Series $7.50 M.

FIGHTING TEXAN

6 reels. Kermit Maynard in a fine Curwood drama. Rental $9.00. In Series $7.50 L.

(E) FIGHTING TO LIVE

6 reels. The "dog with the human brain" teaches human beings how to wrest a living from an unkind world. Rental $10.00. In Series $7.50 M.

FIGHTING TROOPER

6 reels. Kermit Maynard in a thrilling James Oliver Curwood story. Rental $12.50. In Series $10.00 N.

FIGHT ON, MARINES!

7 reels. Wallace Ford and Toby Wing. Deals with the attempt of foreign spies to steal the plans of a new bomb. Rental $10.00. In Series $7.50 M.

FILE NO. 113

7 reels. Lew Cody, Clara Kimball Young, June Clyde, Emil Gaboriaus, famous detective Le Coq. Rental $7.50. In Series $6.00 C.

FIRE TRAP

7 reels. Norman Foster, Evelyn Knapp, Sidney Blackmore. A sensational expose of the arson ring. Rental $9.00. In Series $7.50 L.

(E) FIRST FILM CONCERT

6 reels. Debussy's fascinating "Childrens Corner," played by Alfred Cortot. In cludes other great artists, such as Piatigorsky, Brailowsky, Thibaud in musical masterpieces, and a lovely ballet sequence. Rental $15.00. In Series $12.50 K.

(E) FISHERMAN'S WHARF

8 reels (RKO). Bobby Breen, Leo Carrillo, Henry Armetta. Strange sights and unusual scenes among the happy fisherfolk of San Francisco's famous waterfront. Rental $15.00. In Series $12.50 K.

FIT FOR A KING

8 reels (RKO). He lands in a mythical kingdom steeped in court intrigue. Rental $12.50. In Series $10.00 N.

FLAMES

7 reels. Fun, pathos and thrills of a fireman's life. Rental $7.50. In Series $6.00 C.

FLIRTING WITH DANGER

8 reels. Robert Armstrong, Wm. Cagney and Edgar Kennedy. Three happy-go-lucky dynamite mixers give you a laugh a minute. Rental $10.00. In Series $7.50 M.

FLYING DEUCES (RKO) 8-Reels

Laurel and Hardy get into all kinds of trouble in Morocco. Rental $17.50. In Series $15.00 R.

FLYING FISTS

6 reels. Herman Brix. See the heavyweight champion of the screen, in action. Full of fun and fists. Rental $10.00. In Series $7.50 M.

FLYING WILD

7 reels. East Side Kids. Kid "gang war" declared on flying saboteurs. Enemy agents plot sabotage, and get away with it, 'til these young toughies stumble on their trail and settle things, "tenement style". (LT.) Rental $15.00. In Series $12.50 K.

FOLLIES GIRL

Wendy Barrie, Gordon Oliver, Doris Nolan. Featuring radio's famous BAND LEADERS Johnny Long, Bobby Byrne, Ray Heatherton, Ernie Holst. A streamlined musical extravaganza introducing the following song hits: "No Man In the House" "Shall We Gather at the Rhythm", "I told a Lie", "You Look Good in Anything You Eat", "Some One to Love", "Thoity Poiple Boids", "I Knew Your Father, Son", "Fascination", "Keep the Flag A-Flying, America". An all-out star, an all-out laugh, an all-out musical jamboree of mirth. Rental $15.00. In Series $12.50.

FORBIDDEN COMPANY

7 reels. Sally Blaine, John Darrow. Human interest drama. Rental $6.00 A.

(E) FORBIDDEN MUSIC

7 reels (United Artists). Richard Tauber and Jimmie Durante. An original satirical operetta on the current European political situation. Fun and music. Rental $9.00. In Series $7.50 L.

(E) FORBIDDEN TERRITORY (The)

7 reels. Gregory Ratoff, Ronald Squire. Stern adventure and daring risks in Soviet Russia. Rental $12.50. In Series $10.00 N.

(E) FOREIGN AGENT

7 reels. John Shelton, Gale Storm. The FBI blasts the lid off exciting spy plot. Dramatic revelations of the dangers that lurk in the very shadows of Uncle Sam's mighty ramparts. Timely as a spy trial. (LT.) Rental $15.00. In Series $12.50 K.

(E) FOREIGN CORRESPONDENT

9 reels. Joel McCrea, Larraine Day, Herbert Marshall, George Sanders, Albert Basserman, Robert Benchley. Never equalled on the screen. A giant airliner hurtling into the sea like some mammoth wounded bird — heroism — danger — mighty adventure. This is only one of the thrills in this suspense-packed drama — truly Alfred Hitchcock's greatest screen achievement. Rental $17.50. In Series $15.00 R.

FORGOTTEN

7 reels. June Clyde, Wm. Collier, Jr., Natalie Morehead, in the drama of an unwanted old father. The children learn a lesson. Rental $7.50. In Series $6.00 C.

(E) FORGOTTEN WOMEN

8 reels. Louise Fazenda, Evelyn Brent, Marcelline Day. The contribution of women in the last World War. Rental $12.50. In Series $10.00 N.

(E) FOR LOVE OF YOU

6 reels. Frank Forrest, Diana Napier. In this Venetian operatic sensation, Frank Forrest is supported by beautiful Diana Napier and a magnificent chorus of 250 voices. During the Carnival Scene his marvelous voice rings in those wondrous tenor notes that have charmed millions of music lovers, not only the alluring theme songs by Franz Vienna, from which the picture takes its title, but also magnificent operatic selections from "Othello," "The Pearl Fishers," "Pagliacci" and "Tales of Hoffman." Rental $15.00. In Series $12.50 K.

(E) FOUND ALIVE

7 reels. Barbara Bedford, Maurice Murphy, and Robert Frazer. A jungle picture containing the most thrilling wild animal fights ever filmed. Rental $10.00. In Series $7.50 M.

(E) THE FOUR HUNDRED MILLION

7 reels. Narration by Frederick March. China today! Presages an eventual Chinese victory. Rental $15.00. In Series $12.50 K.

FOURTH ALARM

6 reels. Nick Stuart, Anne Christy, Thomas Santchi in a fire story that holds you spellbound. Rental $7.50. In Series $6.00 C.

FRAMED FOR MURDER

7 reels. Wallace Ford and June Clyde. Wallace Ford is a reporter, and he clears the girl who was "framed" for murder. Rental $10.00. In Series $7.50 M.

(E) FRECKLES COMES HOME

7 reels. Johnny Downs, Gale Storm, Mantan Moreland. There's no place like home, especially when gangsters put you on the spot, the sheriff accuses you of murder, and the girl friend falls in love with a confidence man. Everything happens to Freckles when he comes home from college. (LT.) Rental $15.00. In Series $12.50 K.

FUGITIVE ROAD

7 reels. Eric von Stroheim, Vera Engels, Leslie Fenton. Life of a border patrolman. Rental $4.00 B.

FURY BELOW

7 reels. Russell Gleason and Maxine Doyle in a thrilling story of life below the ground, digging in the mines. Rental $12.50. In Series $10.00 N.

GAIETY GIRLS

8 reels. Patricia Ellis, Jack Hulbert. The happy story of a merry millionaire and a gay girl who turned Paris into a Paradise for Two. Rental with shorts, $12.50. In Series $10.00 N.

GALLANT FOOL (The)

6 reels. Plenty of excitement in an atmosphere of a circus, packed with tense moments. Rental $10.00. In Series $7.50 M.

GALLANT LADY

7 reels (PRC). Rose Hobart, Sidney Blackmer, Gossip, small-town scandal. She didn't mind it for herself, but it was ruining the man she loved. Rental $12.50. In Series $10.00 PR.

GALLOPING DYNAMITE

6 reels. James Oliver Curwood story, with Kermit Maynard. Rental $10.00. In Series $7.50 M.

GANG (The)

6 reels. Ralph Reeder. The Boy Scout troop in this story makes good as excellent entertainers. Rental $12.50. In Series $10.00 N.

GANG BULLETS

7 reels (Monogram). Anne Nagel, Robert Kent. The District Attorney is forced to pretend to join the gang, in order to apprehend the real ringleader. Rental $10.00. In Series $7.50 M.

GANGS ALL HERE (The)

7 reels (Monogram). Frankie Darro, Jackie Moran, Marcia Mae Jones, Keye Luke, Mantan Moreland. Everything happens when two-fisted Frankie Darro leads his pals against the deadliest racket in town. Rental $12.50. In Series $10.00 N.

GANGSTER'S BOY

9 reels (Monogram). Jackie Cooper, Robert Warwick, Lucy Gilman. The ambitions and problems of a High School youth. Rental $12.50. In Series $10.00 N.

"THE GARDEN OF ALLAH"

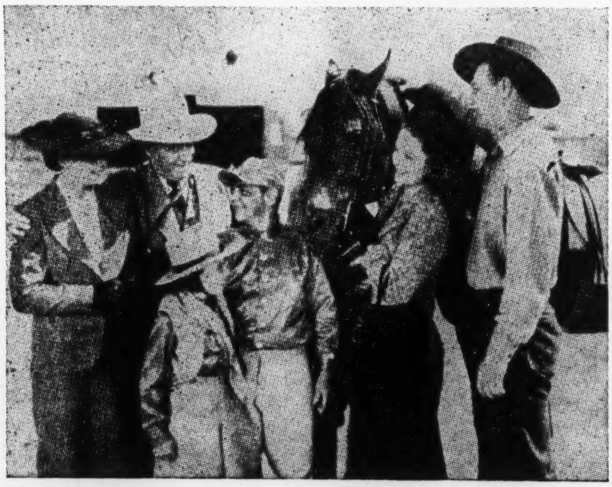
Mid the strange mysteries and fascination of the Algerian Desert transpires a story as enchanting as its wondrous background. From two strange corners of the world come a man and a woman, conquered by a love that overpowers them . . . a love that for him is forbidden . . . for he is an escaped monk from a Trappist Monastery, and bound to God by eternal vows of chastity, poverty and silence. Charles Boyer and Marlene Dietrich are magnificent in this beautiful production. Rental $17.50. In Series $10.00 R.

(E) THE GAY DESPERADO

10 reels (United Artists). Nino Martini, Ida Lupino and Leo Carrillo. Martini, the golden-voiced tenor of the Metropolitan Opera, sings his way out of difficulties in romantic Mexico. Rental $17.50. In Series $15.00 R.

GENTLEMAN FROM ARIZONA

8 reels (Monogram). In GORGEOUS NATURAL COLORS. John King, J. Farrell MacDonald, Joan Barkley—to say nothing about the marvel horse, the fiesta background, and lovely de luxe ranch setting. Rental $17.50. In Series $15.00 R.



GENTLEMAN FROM DIXIE

7 reels. Jack LaRue and Marian Marsh. You'll wish you were in Dixie where the horses are faster, the women lovlier, and the men more reckless. Exciting background for the colorful story of a gentleman with a shady past, who vowed to square accounts with the man who had framed him, and the women who didn't want him around. (LT.) Rental $15.00. In Series $12.50 K.

GEORGE TAKES THE AIR

8 reels. George Formby, Polly Ward, Garry Marsh. In this ace of comedies, Formby plays the role of a good hearted simpleton who gets into the R.A.F. by mistake. Watch him take his Commanding Officer on a rough ride through hill and dale, cattle and sheep roads and detours; then start off in a new high powered speed plane, tho' he knows nothing about flying. It also boasts three good songs: "It's in the Air," "You Can't Fool Me" and "Our Sergeant Major." Rated three stars by Daily News, and acclaimed by all the critics as a fast and crazy farce. Rental with shorts, $12.50. In Series $10.00. N.

THE GHOST AND THE GUEST

James Dunn, Florence Rice, Mabel Todd, in a comedy mystery drama supreme, in which the following recipe for romance is mixed: "Take one empty coffin, add a corpse that comes to life, toss in a diamond necklace, and stir with an insane hangman." It's a honeymoon garnished with laughter and chills. Rental $12.50. In Series $10.00 PR.

GHOST CAMERA (The)

7 reels. Ida Lupino in an ingenious mystery drama, in which a camera plays the important part. Rental $7.50. In Series $6.00 C.

GHOST GOES WEST (The)

10 reels (United Artists). Robert Donat, Jean Parker, Eugene Pallette. Romantic comedy about a Scotchman who sells his home to the wealthy father of a beautiful American heiress. Rental $15.00. In Series $12.50 K.

GHOST PATROL

6 reels. Tim McCoy. A G-man aviator wins the admiration of all in this smashing film of thrills and suspense. Rental $10.00. In Series $7.50 M.

GIRL FROM RIO

7 reels (Monogram). Movita and Warren Hull. Lavish musical numbers are interspersed with thrills, rising to a tense climax as Marquita sings "Romance in Rio" before night club patrons, feeling sure that when the song ended, death would come to her. Rental $10.00. In Series $7.50 M.

GIRL LOVES BOY

8 reels (Grand National). Eric Linden, Cecilia Parker, Roger Imhoff. A headstrong college boy learns to appreciate his kindly father and his home town folks. Rental $7.50. In Series $6.00 C.

(E) GIRL OF THE LIMBERLOST

9 reels (Monogram). Louise Dresser, Marian Marsh, Ralph Morgan. Gene Stratton Porter at her best. Rental $9.00. In Series $7.50 L.

GIRL OF MY DREAMS

8 reels. Mary Carlisle, Eddie Nugent, Arthur Lake in a sparkling musical romance of college youth. Rental $9.00. In Series $7.50 L.

GIRLS IN CHAINS

Arlene Judge, Roger Clark, Robbin Raymond, Barbara Pepper, Dorothy Burgess. They threw the girls into solitary confinement. When they come out they talked. This started a statewide scandal and hit the higher-ups, but led to reform in the reform school. Rental $12.50. In Series $10.00 PR.

GIRLS' TOWN

7 reels (PRC). Edith Fellowes, June Story, Kenneth Howell, Alice White, Anna Q. Nelson. The city of glamour, where beauty is a stock commodity, and a star is born every day, and where many fail. But our girls make good. Rental $12.50. In Series $10.00 PR.

GLADIATOR (The)

8 reels. See Joe as the Gladiator, in action. Rental $15.00. In Series $12.50 K.

GLAMOROUS NIGHT

7 reels. Mary Ellis, Otto Kruger, Victor Jory and Barry Mackay. A political earthquake threatens the kingdom of Krasnia when Prime Minister Lyadeff seeks to usurp the power of King Stefan by gaining control of rich oil lands. Rental $12.50. In Series $10.00 N.

(E) **GLORY TRAIL**

7 reels. Tom Keene. A dramatic story of America, in the Reconstruction period after the Civil War. Rental $9.00. In Series $7.50 M.

GO GET 'EM HAINES

7 reels (Republic). Bill Boyd, Sheila Terry, Eleanor Hunt. A headline hunter braves hot lead for hot news. Rental $9.00. In Series $7.50 L.

GOLD RACKET (The)

6 reels (Grand National). Conrad Nagel, Elinor Hunt, Fuzzy Knight. G-men and G-women frustrate smugglers of gold. Rental $7.50. In Series $6.00 C.

GREAT GOD GOLD (The)

7 reels (Monogram). Sidney Blackmer, Martha Sleeper. A stinging indictment of America's greatest menace—legalized crime. Rental $10.00. In Series $7.50 M.

GREAT GUY

7 reels (Grand National). James Cagney, Mae Clarke, James Burke. Two-fisted Jimmy Cagney goes after the dishonest "weight" racketeers in this Johnny Cave story from the Saturday Evening Post. Rental $10.00. In Series $7.50 M.

GREEN PACK (The)

7 reels. John Stuart in Edgar Wallaces' thriller, with an African setting. Rental $10.00. In Series $7.50 M.

HANDICAP

7 reels. Hobart Bosworth, Marion Shilling, Racetrack thriller. Rental $6.00 A.

HAPPY LANDING

7 reels. Ray Walker, Jacqueline Wells, Noah Beery. Wm. Farnum. Airplane action-comedy. Rental $6.00 A.

HARA-KIRI

8 reels. Charles Boyer, Merle Oberon, John Loder. See the masque of Oriental mystery, torn from the faces of the treacherous Japs, for the first time on the screen. See the treacherous Jap wife-traders who sacrifice their honor for the glory of their warlords. Rental $15.00. Series $12.50 K.

HARDROCK HARRIGAN

7 reels (20th Century-Fox). George O'Brien in an intensely human epic of the life and labor of the hard rock miners. Rental $12.53. In Series $10.00 N.

HATS OFF

7 reels (Grand National). Mae Clarke, John Payne, Helen Lynd. Luis Alberni. Rival cities put on rival World Fairs, with rival press agents! Rental $10.00. In Series $7.50 M.

HAUNTED HOUSE

7 reels (Monogram). Marcia Jones and Jackie Moran. A boy and a girl alone in a mansion, where death struck. Rental $12.50. In Series $10.00 N.

HAWAII CALLS

8 reels (RKO). Bobby Breen, Ned Sparks, Irvin Cobb and the Raymond Page Orchestra. In this picture Bobby is a stowaway on a ship bound for Hawaii. Rental $12.50. In Series $10.00 N.

HEADLEYS AT HOME (The)

6 reels. Evelyn Venable, Grant Mitchell, Vince Barnett, Benny Rubin. A comedy of scrambled family life. Rental $9.00. In Series $7.50 L.

HEADLINE CRASHER

6 reels. Frankie Darro, Kane Richmond, Richard Tucker. A Peter B. Kyne action story. Rental $6.00 A.

HEADLINE WOMEN

7 reels. Heather Angel, Roger Pryer, Ford Sterling. A newspaper woman's effort to get away from publicity. Rental $7.50. In Series $6.00 C.

(E) **HEALER (The)**

8 reels (Monogram). Ralph Bellamy, Karen Morley, Mickey Rooney. Intensely interesting drama based on the life of a young country doctor who specializes in curing crippled children. Rental $9.00. In Series $7.50.

HEART OF NEW YORK (The)

9 reels (United Artists). Al Jolson, Madge Evans, Frank Morgan, Harry Langdon. An adaptation of the story, "Hallelujah, I'm a Bum." Rental $15.00. In Series $12.50 K.

HEART PUNCH

7 reels. Lloyd Hughes, Marion Shilling. Courage and loyalty in the prize-ring. Rental $4.00 B.

(E) **HEART'S DESIRE**

8 reels. Richard Tauber in the captivating music of Johann Strauss and other Viennese composers. Rental $12.50. In Series $10.00 N.

HE COULDN'T TAKE IT

7 reels. Ray Walker, Virginia Sherrill. Comedy drama. Rental $6.00 A.

HELD FOR MURDER

6 reels. Mary Carlisle, Irene Rich, Conway Tearle. Human interest story. Rental $6.00 A.

HELD FOR RANSOM

6 reels. Branche Mehaffey, Grant Withers, Jack Mulhall. Miss Federal Agent solves the mystery in the $50,000 ransom case, when all others failed. Rental $10.00. In Series $7.50 M.

HELL'S ANGELS

Jean Harlow, James Hall, Ben Lyons. Sensational. The mightiest drama the world has ever seen. A production that will go down in history of motion pictures as an unmatched achievement. **For Armed Forces Only.** Rental $15.00.

(E) **HENRY THE EIGHTH**

10 reels (United Artists). Charles Laughton, Merle Oberon, Robert Donat, Binnie Barnes. An authentic story of this much-married and harried King. Rental $15.00. In Series $12.50 K.

(E) **HER FIRST ROMANCE**

8 reels (Monogram). Edith Fellows, Wilbur Evans. Based on the novel, "Her Father's Daughter," by Gene Stratton Porter. Rental $12.50. In Series $10.00 N.

HERE'S FLASH CASEY

6 reels (Grand National). Eric Linden, Boots Mallory, Cully Richards, Holmes Herbert. The thrilling episodes and cruel disappointments of a newspaper photographer. Rental $7.50. In Series $6.50 C.

(E) **HER UNCLE SAM**

9 reels (United Artists). Barbara Stanwyck and Robert Young. Two fugitive young lovers went over the border, and then found out they could not get back. Rental $15.00. In Series $12.50 K.

(E) **HEROES IN BLUE**

7 reels (Monogram). Dick Purcell, Frank Sheridan, in a roaring thriller of the men who guard our lives on the home front. Rental $12.50. In Series $10.00 N.

HIDDEN ENEMY

7 reels (Monogram). Warren Hull, Kay Liniker. Enemy spies operate undetected, until a crusading reporter blows the lid off the plot to wreck our country. Rental $12.50. In Series $10.00 N.

HIDDEN MENACE

5 reels. Otto Kruger, Gertrude Michael, John Clemens. Thrilling romance and adventure in a circus background. Rental $10.00. In Series $7.50 M.

(E) **HIDEOUT IN THE ALPS**

8 reels. Ronald Squire, Jane Baxter. A beautiful picture, romance, with fine Alpine scenery. Rental $10.00. In Series $7.50 M.

HIGH GEAR

7 reels. Jackie Searle, Joan Marsh. Action story. Rental $6.00 A.

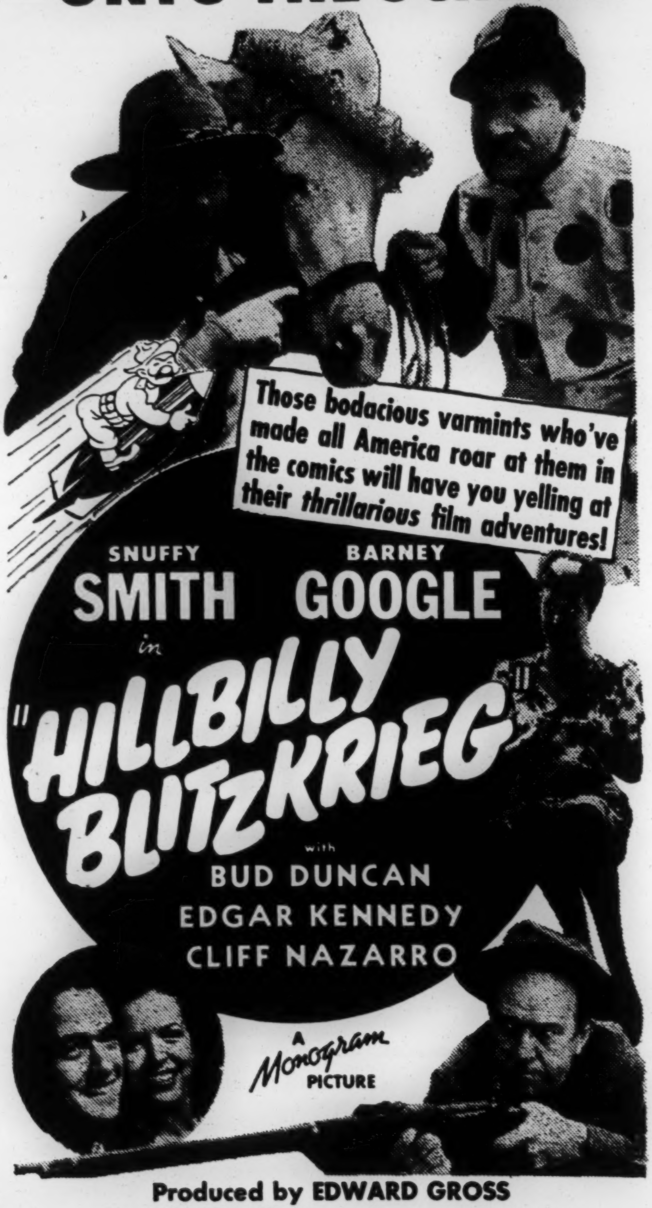
HIGH HAT

7 reels. Frank Luther, Dorothy Dare, Lona Andre, Franklin Pangborn. Story of life behind the scenes in a broadcasting station. Rental $9.00. In Series $7.50 L.

HILLBILLY BLITZKRIEG

7 reels. Bud Duncan, Edgar Kennedy, and Cliff Nazarro. Out of the funnies on to the screen comes this Barney Google story. "Those bodacious varmints who made all America roar at them in the comics, will have you yelling at their thrillarious film adventures. Rental $15.00. In Series $12.50 K.

OUT OF THE FUNNIES —ONTO THE SCREEN!


Those bodacious varmints who've made all America roar at them in the comics will have you yelling at their thrillarious film adventures!
SNUFFY SMITH
BARNEY GOOGLE
in
"HILLBILLY BLITZKRIEG"
with
BUD DUNCAN
EDGAR KENNEDY
CLIFF NAZARRO
A Monogram PICTURE

Produced by EDWARD GROSS

Directed by Roy Mack Screenplay by Ray S. Harris

Based on the Comic Strip "Barney Google and Snuffy Smith" by Billy LeBeck, owned and copyrighted by King Features.

HIS DOUBLE LIFE

8 reels. Lillian Gish and Ronald Young. Based on Arnold Bennett's novel, "Buried Alive." A shy, artistic genius, anxious to avoid publicity, witnesses his own "funeral" and marries the wrong woman! Rental $9.00. In Series $7.50 L.

HIS FIGHTING BLOOD

6 reels. Kermit Maynard in a James Oliver Curwood story of the Northwest Mounted. Rental $12.50. In Series $10.00 N.

HIS GUIDING DESTINY

6 reels. Wm. Collier, Jr., and Blanche Mahaffey. A stirring story of sacrifice, loyalty and courage of a mission worker. Rental $10.00. In Series $7.50 N.

HISTORY IS MADE AT NIGHT

11 reels (United Artists). Stars Charles Boyer, Jean Arthur, Leo Carrillo and Colin Clive. A gay comedy drama, with a Parisian setting. Night clubs, smart restaurants, dance bands, and a terrific scare on board ship, when they almost crash into an ICEBERG! Rental $17.50. In Series $15.00. Weekly Rental $30.00. In Series $25.00 R.

HITCHHIKE TO HEAVEN

7 reels. Henrietta Crosman, Herbert Rawlinson, Russell Gleason, Polly Anne Young, Al Shields in a snappy story of a movie-struck girl who thumbed her way across the country, only to find that love was more important than stardom. Rental $10.00. In Series $7.50 M.

(E) HITLER, THE BEAST OF BERLIN

9 reels. Steffi Duna, Roland Drew. The ramarkable picture shows the interior of a Concentration Camp, and the brutalities inflicted on the unfortunate caught in the Gestapo dragnet. Shows how this fiend uses every torture, not only against his enemies but against his countrymen who differ with him. Rental $12.50. In Series $10.00 N.

HOLLYWOOD COWBOY

7 reels (RKO). George O'Brien and Cecilia Parker. A story of the Wyoming plains, in which the famous hero's horse, Mike, as well as an airplane, participate in rounding up the "bad men." Rental $12.50. In Series $10.00 N.

HONEYMOON LIMITED

8 reels. Neil Hamilton, Irene Hervey, Lloyd Hughes, Russell Hicks. The adventures of a struggling author in his efforts to fame. Rental $10.00. In Series $7.50 M.

HONG KONG NIGHTS

6 reels. Tom Keene, Vera Engels. Action story. Rental $6.00 A.

HONOR OF THE PRESS

6 reels. Eddie Nugent, Rita LaRoy. Fine newspaper story. Rental $4.00 B.

(E) HOOSIER SCHOOLBOY

8 reels (Monogram). Mickey Rooney in Edward Eggleston's story of early Hoosier life. Rental $12.50. In Series $10.00 N.

(E) HOOSIER SCHOOLMASTER

8 reels (Monogram). Norman Foster, Charlotte Henry, Wallace Reid, Jr., in this gripping drama by Edward Eggleston. Rental $9.00. In Series $7.50 L.

HOT CURVES

8 reels. Benny Rubin, Rex Lease, Alice Day. A rollicking story of a small town boy who makes good as a big league baseball player. Rental $9.00. In Series $7.50 L.

HOTEL CONTINENTAL

7 reels. Peggy Shannon, Theodore von Eltz. Mystery story. Rental $6.00 A.

HOT OFF THE PRESS

6 reels. Jack LaRue, Virginia Pine, Montie Blue and Fuzzie Knight. Rival newspapers clash in a circulation contest. A Peter B. Kyne story. Rental $10.00. In Series $7.50 N.

HOUSE ACROSS THE BAY (The)

9 reels. George Raft, Joan Bennett, Gladys George, Walter Pidgeon, Lloyd Nolan. She used a woman's way to save her man. No man would ever dare to risk the wild decision she made. A story of turbulent love played by two of the screen's most gifted dramatic stars. Rental $17.50. In Series $15.00 R.

HOUSEKEEPER'S DAUGHTER (The)

9 reels (Hal Roach Production). Joan Bennett, Adolphe Menjou. She does not know how to cook, but oh! how she can sew and saw Rental $17.50. In Series $15.00. $35.00 weekly. $105.00 monthly HR.

HOUSE OF DANGER (The)

7 reels. Onslow Stevens. A mystery romance packed with intrigue and suspense in a South Sea island and California setting. Rental $9.00. In Series $7.50 L.

HOUSE OF ERRORS

7 reels (PRC). Harry Langdon, Charles Rogers, Marian Marsh, Ray Walker. He and his whacky pal go gunning for a machine gun story. What happens to them could happen to only to a couple of screwballs gone haywire. Rental $12.50. In Series $10.00 PR.

HOUSE OF MYSTERY (The)

7 reels. Edward Lowry, Mary Fox. Out of the mystic temples of ancient India crept a baleful monster. Rental $7.50. In Series $6.00 C.

HOUSE OF SECRETS

7 reels. Leslie Fenton. When he inherited his ancestral "ghost" he got more than he bargained for. Rental $9.00. In Series $7.50 L.

HUMAN MONSTER (The)

8 reels (Monogram). Bela Lugosi, Hugh Williams, in Edgar Wallace's great story of a half beast, half man. who kills at the command of a vengeful maniac. Rental $12.50. In Series $10.00 N.

HYPNOTIZED

7 reels. Moran and Mack, with Charles Murray. A merry musical hurricane of fun and foolishness that starts in a circus and winds up on an ocean liner. Rental $10.00. In Series $7.50 M.

I AM A CRIMINAL

8 reels (Monogram). John Carroll, Mary Kornman, Craig Reynolds. A racketeer forfeits his freedom to save his adopted son's life. Rental $9.00. In Series $7.50 L.

(E) I CONQUER THE SEA

7 reels. Steffi Duna and Dennis Morgan. Drama of thrills and music, the life of whalers along the Labrador coast. Rental $10.00. In Series $7.50 M.

I COVER CHINATOWN

7 reels. Norman Foster, Elaine Shepherd, Theodore von Eltz, Pollyanne Young, Arthur Lake. Fascinating mystery story in the fantastic alien parts of San Francisco's Chinatown. Rental $7.50. In Series $6.00 C.

I COVER THE WATERFRONT

7 reels (United Artists). Claudette Colbert, Ben Lyon, Ernest Torrence. A thrilling story of adventure on the waterfront from Max Miller's book. Rental $15.00. In Series $12.50 K.

I DEMAND PAYMENT

6 reels. Jack LaRue, Betty Burgess, Big Boy Williams. Thrilling action story. Rental $6.00 A.

I'LL NAME THE MURDERER

7 reels. Ralph Forbes, Marion Shilling. A clever mystery story. Rental $4.00 B.

I'LL SELL MY LIFE

7 reels (PRC). Rose Hobart, Michael Whelan, Stanley Fields, Roscoe Ates. A baffling murder mystery with the most courageous heroine you ever saw. Rental $12.50. In Series $10.00 PR.

(E) I MARRIED A SPY

7 reels (Grand National). Neil Hamilton and Brigitte Horney. An exciting, up-to-the-minute story of a beautiful young woman in the Secret Service of France, married to a young officer, and of the battle in which the two engaged in to prevent the duties of her position from wrecking her happiness. Story taken from Paul de Sainte Colombe's best seller novel, "Secret Lives." Rental $12.50. In Series $10.00 N.

I MET A MURDERER

7 reels. James Mason and Sheila Morgan. From a basically simple theme, the story of a man who, driven to distraction by his nagging wife, murdered her—and then while attempting to escape the police, falls in love with a young author. This story piles thrill upon thrill, chill upon chill, mystery upon mystery until the final gripping climax that lifts you off the chair. Rental, with shorts, $10.00. In Series $7.50 M.

I MET MY LOVE AGAIN

8 reels (United Artists). Joan Bennett, Alan Marshall, Alan Baxter, Henry Fonda, Dame Whitty, in a story taken from the novel "Summer Lightning." Moonlight and romance are in it. A college flapper in a blizzard—a runaway horse, a pretty girl lost in the snow! Program $17.50. Series $15.00. Weekly Rental $30.00. In Series $25.00 R.

(E) INDIA SPEAKS

8 reels. A land of breath-taking beauty with 2300 robed and turbaned castes moving against a background of alabaster palaces, strange worship, unbelievable tortures, tremendous adventures. Rental $15.00. In Series $12.50 K.

(E) IN HIS STEPS

8 reels. Eric Linden, Cecelia Parker, Henry Kolker, Charles Richman. An inspiring and stimulating dramatization of Christianity as the basis of a system of practical ethics in a society based on materialistic consideration. Rental $15.00. In Series $12.50 K.

INSIDE THE LAW

7 reels (PRC). Wallace Ford, Frank Sully, Harry Holman. Money means nothing when a band of luckv "yeggs" fall heir to a small town bank. Rental $12.50. In Series $10.00 PR.

INTERNATIONAL CRIME

7 reels (PRC). Rod LaRocque, Astrid Allwyn, Thomas Jackson, Foreign powers plot the doom of a nation, and the master detective solves his strangest case. Rental $10.00. In Series $7.50 M.

INTERNATIONNAL SPY

7 reels (PRC). Rod LaRocque, Astrid Allwyn, Thomas Jackson, on Uncle Sam's secrets. Rental $12.50. In Series $10.00 PR.

INTRUDER (The)

7 reels. Lila Lee and Monte Blue. Thrilling story of shipwrecked refugees. Rental $4.00 B.

INVISIBLE GHOST

7 reels. Bela Lugosi, Pollyann Young. Even Frankenstein and Dracula would tremble if they had to spend a night in this house of terror, with a phantom fiend as their host. The chiller-diller of all screen mysteries. (LT). Rental $15.00. In Series $12.50 K.

INVISIBLE KILLER

7 reels. Grace Bradley, Roland Drew, William Newell and Boyd Irwin. From Carter Wayne's mystery novel of men who meet instant death as they use the telephone. Rental $10.00. In Series $7.50 M.

INVITATION TO THE WALTZ

8 reels. Lillian Harvey. Von Weber's famous music brought to the screen. Rental $15.00. In Series $12.50 K.

INYAAH, THE JUNGLE GODDESS

7 reels. A most unusual picture. The first three reels show Doc. Cook's expedition in Borneo. The last four reels is a drama of Borneo's jungles, with a Borneo cast. See the struggle for life with a crocodile, the killer tiger attacking a native, the 30-ft. python used as an instrument of revenge. Rental $12.50. In Series $10.00 N.

IRISH LUCK

7 reels (Monogram). Frankie Darro, Lillian Elliott, Mantan Moreland, Dick Purcell. A snappy mystery story about an inquisitive bellboy whose detecting hobby kept his police friend busy getting him out of difficulties. Rental $10.00. In Series $7.50 M.

(E) IRON DUKE

10 reels (Gaumont-British). George Arliss, A. E. Mathews. Story of the noted Duke of Wellington. Rental $12 .50. In Series $10.00 N.

(E) ISLAND CAPTIVES

6 reels. Eddie Nugent and Joan Barkley in a South Sea Island story in which whites and natives clash. Rental $9.00. In series $7.50 L.

IT COULDN'T HAVE HAPPENED

7 reels. Jack LaRue, Evelyn Brent. Mystery drama with plenty of comedy. Rental $4.00 B.

(E) IT HAPPENED OUT WEST

7 reel s(20th Century-Fox). Paul Kelley, Judith Allen, Johnny Arthur. The wild west goes wilder when a fistswinging dude from the East tackles a hard-riding gang from the Badlands. A Harold Bell Wright story. Rental $12.50. In Series $10.00 N.

HAROLD BELL WRIGHT'S BEST WESTERN YET!...
His latest and greatest thrill-teeming yarn... double-loaded with love and laughter!
'IT HAPPENED OUT WEST'

IT'S LOVE AGAIN

9 reels. Jessie Mathews, Robert Young, Sonnie Hale. Disappointed in becoming an actress, Jessie Mathews impersonates a fictitious character featured in a newspaper story, and starts a train of events which include Music, Opportunity and Romance. Rental $12.50. In Series $10.00 N.

(E) JACARE

8 reels. Frank Buck in the first feature ever filmed in the wilds of the Amazon jungle. Authentic, amazing, exciting. Spend the most exciting hour of your life in the jungle of the Amazon, where there is death in every shadow, and a thrill every minute. Rental $17.50. In Series $15.00 R.

(E) JANE EYRE

7 reels (Monogram). Virginia Bruce, Colin Clyde, in a marvelous adaptation of Charlotte Bronte's novel. Rental $9.00. In Series $7.50 L.

(E) JAWS OF JUSTICE

6 reels. Starring Kazan, the Wonder Dog. This great dog star defends his master from the jewel thieves. Rental $10.00. In Series $7.50 M.

(E) JAWS OF THE JUNGLE

6 reels. The story of migration in Ceylon. Rental $12.50. In Series $10.00 N.

JUGGERNAUT

7 reels. Boris Karloff. He staked his life on a test of science—and lost. Rental $10.00. In Series $7.50 M.

JUNGLE BRIDE

7 reels. Anita Page and Charles Starret. Fighting civilization's battle, against primitive instincts, in a country where danger lurks and death strikes as quickly as the leopard leaps. Rental $10.00. In Series $7.50 M.

JUNGLE CAVALCADE

8 reels. Frank Buck adventure. In this picture we see Frank Buck in different expeditions, capturing wild animals alive, and bringing them back for the zoos of America. A thrill in every foot of the film. Many narrow escapes and exciting adventures. Rental $15.00. In Series $12.50 K.

(E) JUNGLE FURY

Buster Crabbe and an all-star cast of WILD ANIMALS. Rental $12.50. In Series $10.00 PR.

(E) JUNGLE SIREN

7 reels. Ann Cario, Buster Crabbe. Americans with the Free French in Africa in conflict with natives favorable to the Nazis. Rental $12.50. In Series $10.00 PR.

JUSTICE TAKES A HOLIDAY

7 reels. H. B. Warner, Huntley Gordon, John Ince, Robert Fraser. He committed a crime to save his dying wife, was sentenced and imprisoned. Shall he declare his identity to save his daughter's happiness? Rental $7.50. In Series $6.00 C.

JUST LIKE A WOMAN

10 reels. John Lodge and Gertrude Michael. A quest for a string of rare black pearls takes the hero to England and South America. Rental $12.50. In Series $10.00 N.

JUST MY LUCK

7 reels. Charles Ray as an inventor of a revolutionary process for making RUBBER, is the butt of many jibes and jokes, until he suddenly develops a new process of invaluable nature—and the tables are turned. Rental $7.50. In Series $6.00 C.

(E) JUVENILE COURT

8 reels (United Artists). Junior Durkin, Pat O'Brien, Betty Davis, Junior Coughlin. The story of a boy who was sentenced to a reform school for a crime of which he was innocent. Rental $12.50. In Series $10.00 N.

(E) KATHLEEN

8 reels. Tom Burke and Sally O'Neil—and an all-Irish Singing and dancing masterpiece. Rental $10.00. In Series $7.50 M.

(E) KEEPER OF THE BEES

8 reels (Monogram). Neil Hamilton, Betty Furness in Gene Stratton Porter's novel, remarkably dramatized. Rental $9.00. In Series $7.50 L.

KELLY OF THE SECRET SERVICE

7 reels. Lloyd Hughes, Sheila Manners. A Peter B. Kyne action drama. Rental $6.00 A.

KENTUCKY BLUE STREAK

6 reels. Eddie Nugent. Thrilling racetrack drama. Rental $6.00 A.

KILLER BATS

8 reels (PRC). Bela Lugosi, Suzanne Kaaren. A blood-freezing horror picture in which flying monsters swoop out of the blackness of night, to work havoc among the innocent. Rental $12.50. In Series $10.00 PR.

(E) KILLERS OF THE SEA

5 reels. Capt. Wallace Caswell takes us shark-hunting in the Gulf of Mexico. Rental $9.00. In Series $7.50 L.

KING KELLY OF THE U.S.A.

7 reels. Guy Robertson, Edgar Kennedy, Irene Ware, in a rollicking musical operetta. Rental $7.50. In Series $6.00 C.

KING OF THE CIRCUS

70 minutes of thrills, action, romance, with Gregory Ratoff, Benita Hume, Richard Bennett. Offers an evening's entertainment every type of audience will enjoy. Rental $12.50. In Series $10.00 N.

KING OF THE SIERRAS

6 reels. Starring Rex, King of Wild Horses, and Sheik, the new wonder-horse. An epic of the last roundup of the wild mustangs of Arizona. Rental $10.00. In Series $7.50 M.

KING OF THE ZOMBIES

7 reels (Monogram). Dick Purcell, Joan Woodbury, Mantan Moreland. The story of the living dead, captives of an unholy cult. Rental $15.00. In Series $12.50 K.

KLONDIKE FURY

7 reels. Edmund Lowe, Lucille Fairbanks, Ralph Morgan. He-man drama of the fighting North. A doctor fleeing from an unfortunate past, and a man fighting for his life, clash in the Alaskan wilderness, where your name doesn't matter, but your courage does. (LT.) Rental, $15.00. In series $12.50 K.

(E) KNIGHT WITHOUT ARMOR

11 reels (United Artist). Marlene Dietrich and Robert Donat in a thrilling war drama in which the modern "Knight" comes to the Lady's rescue. Rental $15.00. In Series $12.50 K.

LADIES CRAVE EXCITEMENT

7 reels. Norman Foster, Esther Ralston, Eric Linden, Evelyn Knapp. The epic of the newsreel men who face the dangers of huge dynamite explosions and the escaping convicts, to get a scoop. Rental $9.00. In Series $7.50 L.

(E) LADY FROM CHUNGKING

Anna May Wong, Harold Huber, Ricki Vallin, Mae Clarke. "This story of sabotage and guerilla warfare against the Japanese invaders by the indestructible Chinese is distinguished for its sincere story, performances and direction, and the impressiveness of the productional values". Rental $12.50. In Series $10.00 PR.

LADY IN THE MORGUE

7 reels (Universal). Preston Foster, Patricia Ellis, Frank Jenks. They stole the body of a beautiful girl from the morgue before was identified. Rental $12.50. In Series $10.00 N.

LADY IN SCARLET

7 reels. Reginald Denny, Patricia Farr. What horrible death waited for those trapped by the lure of the lady in scarlet! Rental $9.00. In Series $7.50 L.

LADY LUCK

7 reels. Patricia Farr. A happy-go-lucky laugh a minute adventure of a manicurist who goes from rags to riches overnight. Rental $7.50. In Series $6.00 C.

(E) LADY OF THE LAKE

5 reels. Percy Marmott and Benita Hume, in an artistic film version of Sir Walter Scott's lovely poem. Rental $10.00. In Series $7.50 M.

LADY RAFFLES (A)

6 reels. Glen Tryon, Dorothy Revier. Thrilling detective story. Rental $4.00 B.

LAST ALARM (The)

8 reels (Monogram). J. Farrell MacDonald, Polly Anne Young, Warren Hull. Fire fiends set a city aflame, as arson squads hunt the guilty ones. Rental $12.50. In Series $10.00 N.

(E) LAST DAYS OF POMPEII

10 reels. RKO's mighty spectacle. See description and rental price in religious catalogue.

THE LAST MILE

Preston Foster, Howard Phillips, Noel Madison, George Stone. Gripping—pulsating—stabbing. Doomed men fight to live—to love and be loved. From the play that rocked the nation, by John Wexley. Innocent of murder, but condemned to legal death, a few minutes to live, a faint hope of escape—would YOU try? Millions are waiting to see this great human document that will lie foreer. Rental with shorts $15.00. $12.50 in series.

(E) LAST OF THE MOHICANS

10 reels (United Artists). Bruce Cabot, Binnie Barnes, Heather Angel, Randolph Scott, in the historic novel by James Fenimore Cooper. Rental $17.50. In Series $15.00 R.

LAUGHING AT DANGER

7 reels (Monogram). Frankie Darro, Joy Hodges, George Houston, Mantan Moreland. Blackmailers play a daring game until Frankie blunders on to the solution and takes them on single-handed. Rental $12.50. In Series $10.00 N.

(E) LAW COMMANDS

6 reels. Tom Keene. An epic story of the homesteaders in 1862. Rental $12.50. In Series $10.00 N.

(E) LAW OF THE JUNGLE

7 reels. Arline Judge, John King, and Mantan Moreland. Adventure with death. Killer-beast, savage tribesmen, jungle death-traps, which threaten every step of this American girl's daring flight across the Dark Continent. (LT.) Rental $15.00. In series $12.50 K.

(E) LAW OF THE TIMBER

7 reels (PRC). Marjory Reynolds, Monte Blue and J. Farrell MacDonald. Ten tons of TNT blast the hills to start a mad avalanche of death in this James Oliver Curwood drama. Rental $12.50. In Series $10.00 PR.

LAW OF THE WOLF

6 reels. Rin Tin Tin, Jr., at his best. Rental $10.00. In Series $7.50 M.

LEGION OF MISSING MEN

7 reels (Monogram). Ralph Forbes. A Foreign Legion post on a North African desert are background for this World War hero's adventures. Rental $9.00. In Series $7.50 L.

LEGION OF VALOR

12 reels (United Artists). Richard Arlen, Virginia Bruce, Alice Brady. The truth about the heroes of the Department of Justice—and how they work while the nation sleeps. Rental $17.50. In Series $15.00 R.

(E) LEOPARD MEN OF AFRICA

8 reels. The Congo's most blood-chilling secrets unleashed, as men and monsters clash. Thrill piled on thrill, sensation on sensation, as the screen exposes, for the first time, the inner workings of the jungle's deadly scourge. Ten thousand jungle freaks and oddities in scenes of staggering drama and magnitude. Rental $15.00. In Series $12.50 K.

LET'S GET TOUGH

7 reels. East Side Kids, and Tom Brown. The Bowery joins the United Nations. Those East Side SHOCK TROOPS deliver a "kiss" to Hitler's and Hirohito's henchmen over here, and smash a giant spy ring. (LT.) Rental $15.00. In Series $12.50 K.

LET'S GO COLLEGIATE

7 reels. Frankie Darro, Marsha Mae Jones, Manton Moreland. They're out of this world. The joint's jumpin', hearts are bumpin', music's a-thumpin'. Hollywood's young stars put a new kind of zig in the old kind of zag in the freshest college story ever filmed. (LT.) Rental $15.00. In Series $12.50 K.

(E) LET'S SING AGAIN

8 reels (RKO). Bobby Breen, Henry Armietta. Bobby plays an orphan boy who is reunited with the long-lost father after years of loneliness in an orphanage. Rental $10.00. In Series $7.50 M.

(E) LIFE OF ROBERT BURNS (or Auld Lang Syne)

7 reels. Andrew Cruikshank. This beautiful story portrays the life and much of the poetry of the great Scottish bard. Rental $12.50. In Series $10.00 U.

(E) LIFE RETURNS

7 reels. Onslow Stevens, Lois Wilson. A father, son and dog story of an unusual nature. Rental $10.00. In Series $7.50 M.

(E) LIGHTS OUT IN EUROPE

7 reels. One by one the lights of liberty went out in Poland, Danzig, and France. Rental $15.00. In Series $12.50 K.

LILAC DOMINO (The)

8 reels (United Artists). June Knight, Michael Bartlett. Tremendous gayety in this film of the famous old musical days. Rental $10.00. In Series $7.50 M.

LION MAN (The)

7 reels. Kathleen Burke, Charles Loucher, in an Edgar Rice Burroughs story adapted from the novel, "The Lad and the Lion." Rental $7.50. In Series $6.00 C.

LITTLE LORD FAUNTLEROY

10 reels. Freddie Bartholomew, Dolores Costello, C. Aubrey Smith, Guy Kibbee, Mickey Rooney, Una O'Connor. Lifted from humble surroundings, to become an English Lord, he always remembered his old friends and the fun they had with him back in America. Rental $17.50. In Series $15.00 R.

Freddie Bartholomew
Dolores Costello Barrymore

(E) LITTLE MEN

8 reels (Monogram). Ralph Morgan, Junior Durkin, Frankie Darro, Dickie Moore in Louisa M. Alcott's beautiful story of boy life. Rental $9.00. In Series $7.50 L.

(E) LITTLE RED SCHOOLHOUSE

7 reels. Dickie Moore. This picture recaptures those never-to-be-forgotten days of youth when readin', writin', and 'rithmetic were one's only troubles. Program $9.00. In Series $7.50 L.

LONG SHOT (The)

7 reels. Gordon Jones, Marsha Hunt, George E. Stone, Thundering hoofs and pounding hearts at the country's leading race-tracks. Rental $10.00. In Series $7.50 M.

(E) LOST IN THE STRATOSPHERE

7 reels. 75,000 feet up! They blazed a trail of red romance across the milky way. William Cagney, Eddie Nugent, June Collyer and a fine cast present an exciting drama of the air. Rental $9.00. In Series $7.50 L.

(E) LOST JUNGLE (The)

7 reels. Clyde Beatty, in breathtaking scenes of the greatest aggregation of wild beasts ever assembled in a motion picture. Rental $9.00. In Series $7.50 L.

LOTTERY BRIDE (The)

8 reels (United Artists). Jeanette MacDonald, Joe E. Brown, Zasu Pitts. Arthur Hammerstein's production with the background of old Norway. Rental $10.00. In Series $7.50 M.

LOUD SPEAKER (The)

8 reels. Ray Walker, Jacqueline Wells, Noel Francis, Charles Grapewin, Wilbur Mack. A riot of laughs, captivating musical numbers, and wisecracks. Rental $7.50. In Series $6.00 C.

LOVE FROM A STRANGER

9 reels(United Artists). Ann Harding, Basil Rathbone. Agatha Christie's fine story, dramatized by Frank Vosper, now brought to the screen. Most thrilling climax in pictures. Rental $17.50. In Series $15.00 R.

LOVE PAST THIRTY

7 reels. Aileen Pringle, Theodore von Eltz, Mary Carr. Human interest drama. Rental $6.00 A.

LOVE TAKES FLIGHT

7 reels (Grand National). Bruce Cabot, Beatrice Roberts, John Sheehan. Thrilling story of an air stewardess and an air pilot who meet romance in the skies. Rental $9.00. In Series $7.50 L.

LUCKY CORRIGAN

7 reels (Columbio). Wm. Gargan and Mollie Lemont in a red-blooded tale of lumbercamps. Rental $10.00. In Series $7.50 N.

(E) LURE OF THE ISLANDS

7 reels. Big Boy Williams, Gale Storm, Ivan Lebedeff, Warren Hymer, the Bray Sisters, and Margie Hart. Three songs, each sung by a different girl, form a tuneful background to this romance of the South Seas. (LT.) Rental $15.00. In Series $12.50 K.

(E) LURE OF THE WASTELAND

6 reels. **In beautiful natural color.** Grant Withers, LeRoy Mason, Marion Arnold, Snub Pollard, Carl Hackett. A spectacular thrilling western, unfolded in COLOR reels of compelling beauty, filmed against the authentic background of nature's loveliness and majesty. Rental, with colored shorts, making an ALL-COLOR PROGRAM, $15.00. In Series $12.50, Weekly $25.00.

MAD MONSTER (The)

7 reels (PRC). Johnny Downs, George Zucco, Anne Nagel. One minute a harmless country boy, the next moment a snarling, ferocious wolf-man. A human monster with fangs of a beast. Rental $12.50. In Series $10.00 PR.

MADE FOR EACH OTHER

9 reels. Carole Lombard, James Stewart. The heartbreak of two young people in love, facing the world with song in their hearts — laughter — melodrama. A tribute to the great Carole Lombard, who, in this picture proved she could not only play comedy roles, but also tense dramatic roles. Rental $17.50. In Series $15.00 R.

MAKE A MILLION
7 reels. Charles Starrett, Pauline Brooks. Fine comedy drama. Rental $6.00 A.

(E) MAKE A WISH
8 reels (RKO). Bobby Breen, Basil Rathbone. The story of the rehabilitation of a composer who has gone stale. Through his friendship for a boy, his fine music is renewed. Rental $12.50. In Series $10.00 N.

MALAY NIGHTS
7 reels. Johnny Mack Brown. A dancer's love for a pearldiver leads to countless adventures in the magic tropics. Rental $12.50. In Series $10.00 N.

MAN FROM HEADQUARTERS
7 reels. Frank Albertson and Joan Woodbury. "They don't dare kill a reporter" is easy for an Editor to tell to a newspaper man; but every reporter knows there will be a bullet, with his name on it, the minute he puts the finger on an underworld czar. (LT). Rental $15.00. In Series $12.50 K.

MAN FROM WASHINGTON
A thrilling story with a surprise cast. Send for descriptive circular. Rental $12.50. In Series $10.00 PR.

MANHATTAN LOVESONG
8 reels. Robert Armstrong, Dixie Lee and Helen Flint. Two wealthy girls lose their money, but find other things in life worth while. Rental $9.00. In Series $7.50 L.

MANHATTAN SHAKEDOWN
6 reels. John Gallaudet and Rosalind Keith. A biting, blistering drama of splendid daring, roaring action, glamorous exploits. Rental $12.50. In Series $10.00 N.

MAN IN THE MIRROR
7 reels. Edward Everett Horton and Genevieve Tobin, An hilarious comedy with this famous comedy team in their funniest roles. Rental $9.00. In Series $7.50 L.

MAN OF AFFAIRS
9 reels (Gaumont-British). George Arliss in an exciting story of political intrigue in the Far East. Rental $12.50. In Series $10.00 N.

(E) MAN OF ARAN
6 reels. Fighting for a bare existence in the Aran Islands off the coast of Western Ireland. Rental $15.00. In Series $12.50 K.

MAN OF COURAGE
Barton MacLane, Charlotte Wynters, Lyle Talbot, and Dorothy Burgess. Destiny ganged up on him. A hit-and-run killer comes to the end of his trail and gets paid in his own coin. A tense and powerful story. Rental $12.50. In Series $10.00 PR.

(E) MAN'S BEST FRIEND
6 reels. Illustrating the acknowledged fact of a dog's understanding and love of the Boy, his master. Rental $10.00. In Series $7.50 M.

MAN WHO COULD WORK MIRACLES
9 reels (United Artists). Ronald Young, Joan Gardner, Ralph Richardson in H. G. Wells' first screen comedy, of the mouse-like clerk who suddenly acquires the power to work miracles. Rental $15.00. In Series $12.50 K.

MAN WHO KNEW TOO MUCH (The)
9 reels (Gaumont-British). Peter Lorre, Leslie Banks, Nove Pilbeam. The Parents' Magazine says of this picture, which exalts cowboy life: "An outstanding film for young people and children." Rental $12.50. In Series $10.00 N.

MAN WHO LIVED AGAIN
9 reels (Gaumont-British). Boris Karloff in a horror picture, in which a scientist transfers the brain, mind and soul from one man to another. Rental $12.50. In Series $10.00 N.

MAN WITH TWO LIVES
7 reels. Edward Norris, Eleanor Lawson. Gentleman by day, killer by night—a modern "Jekyll and Hyde" who terrorizes an entire city. (LT.) Rental $15.00. In Series $12.50 K.

(E) MARCH OF THE MOVIES
6 reels. Documentary film showing growth and development of motion pictures, from the days of the Egyptians, to the advent of "sound." Rental $10.00. In Series $7.50 M.

MARINES ARE COMING
8 reels. Wm. Haines, Conrad Nagel, Esther Ralston, Edgar Kennedy. Comedy and heroism in The Marines. Rental $6.00 A.

MARINES ARE HERE
7 reels (Monogram). June Trevis, Gordon Oliver, Ray Walker, Regeneration comes through the devotion of a small boy. Rental $10.00. In Series $7.50 M.

(E) MATTO GROSSO
5 reels. Jungle exploration in the wilds of Brazil. Rental $10.00. In Series $7.50 M.

MEDICINE MAN
7 reels. Ben Berne. Rental $10.00. In Series $7.50.

(E) MEET DR. CHRISTIAN
Jean Hersholt, Dorothy Lovett, Robert Baldwin. A true picture of small town life showing the part that the kindly physician plays in the civic and private affairs of the community. Homely comedy and romance combine to make this film perfect entertainment for the entire family. Complete program $15.00 In Series $12.50.

MEET THE MAYOR
7 reels. Frank Fay, Nat Pendleton, Ruth Hall, Berton Churchill, Eddie Nugent and Franklin Pangborn. An excellent comedy drama based upon the political doings in an average small town. Rental with two reels shorts $10.00. In Series $7.50 M.

(E) MELODY FOR THREE
Jean Hersholt, Fay Wray, Walter Woolf King, Toscha Seidel. This latest Dr. Christian picture provides the story with a musical background and has for its locale, not only the peaceful setting of Rivers End, but also the feverish activity of a Chicago broadcasting studio. Highlight of the film is the finale in which a 75 piece orchestra plays a stirring Brahm's Hungarian Dance No. 5 with a boy prodigy as guest soloist. Complete program $15.00. In Series $12.50.

MELODY MAKER (The)
6 reels. Freddie Cunningham and his Minstrel Boys. The story of a crooner in his private and public life. Six excellent hit tunes are sung, and three haunting dance tunes played. Rental $12.50. In Series $10.00 N.

MEN OF ACTION
6 reels (Monogram). Frankie Darro, Roy Mason, Barbara Worth. An action story on the locale of a dam-building job. Rental $9.00. In Series $7.50 L.

(E) MEN OF IRELAND
7 reels. Another story of Ireland's rugged men, where men must be strong to survive. Rental $15.00. In Series $12.50 K.

MEN OF SAN QUENTIN
7 reels (PRC). J. Anthony Hughes, Dick Curtis, Jeffery Sayre, Eleanor Stewart. The inside story of a warden who dares to make men out of criminals. Rental $12.50. In Series $10.00 PR.

MERCY PLANE
7 reels (PRC). James Dunn. The mercy plane is on its way to mend broken bodies and heal souls in torment. Rental $10.00. In Series $7.50 PR.

MICKEY THE GREAT
7 reels. Mickey Rooney. This is an all-comedy film starring Mickey Rooney in the early comedies which made him famous. The girl who played "tomboy" in these comedies, meets some of her girl friends and tells them incidents in Mickey's life. This is an ALL-LAUGH picture. Rental with shorts, $12.50. In Series $10.00.

MIDNIGHT LIMITED
7 reels (Monogram). John King, Marjorie Reynolds, George Cleveland. The phantom killer escapes to strike again. Rental $15.00. In Series $12.50 K.

MIDNIGHT PHANTOM
7 reels. Thrilling mystery drama. Rental $6.00 A.

MILE A MINUTE LOVE
7 reels. Wm. Bakewell, Arlita Duncan, Duncan Rinaldo. Bill Bakewell, champion speed artist, turns life saver in a test of his skill in handling racing boats. Rental $10.00. In Series $7.50 M.

MILLIONAIRE MERRY-GO-ROUND
9 reels. Harry Richman, Hal Thompson, Evelyn Dall, Ambrose Orchestra. This fine musical picture is filled with popular music, hit tunes, played and sung by fine orchestras and singers. Rental $15.00. In Series $12.50 K.

MILLION DOLLAR BABY
8 reels. Arline Judge, Ray Walker and Little Jimmy Faye. Exciting comedy drama. Rental $6.00 A.

MILLION DOLLAR RACKET
7 reels. Herman Brix. An uproarious comedy of the social-climbing Hennessys. Rental $9.00. In Series $7.50 L.

MILLION TO ONE (A)
7 reels. Herman Brix and Joan Fontanne. Two rivals strive for supremacy against the famous background of the Olympic games. Rental $9.00. In Series $7.50 L.

MINE WITH THE IRON DOOR
7 reels (Columbia). Richard Arlen in Harold Bell Wright's story of Arizona, and a great mystery. Rental $10.00. In Series $7.50 M.

MIRACLE KID
7 reels (PRC). Tom Neal, Carol Hughes, Vicki Lester. Screwball of the squared circle—a punk takes a dive . . . then claims he was "hexed"—and now this guy actually thinks he's winning fights with voodoo. Rental with two reels shorts $12.50. In Series $10.00 N.

(E) MISS V FROM MOSCOW
Lola Lane, Noel Madison, Howard Banks. She had a date with destiny. Dangerous night in Paris. An American Flying Ace and a beautiful Russian spy outwit the Gestapo, and save the American convoy. Flaming spy story of the present stirring battlefront. Rental $12.50. In Series $10.00 PR.

MISSING GIRLS
7 reels. Muriel Evans, Sidney Blackmer, Noel Francis. Thrilling newspaper story. Rental $6.00 A.

MISSING PEOPLE
7 reels (Monogram). Will Fyffe, Kay Walsh, Lyn Harding. The brain trust of gangdom's most desperate criminals, pitted against a mysterious old man. Rental $10.00. In Series $7.50 M.

MONEY TALKS
6 reels. Julian Rose, Kid Berg, Judy Kelly. A comical clothing store situation. Rental $4.00 B.

MONSTER WALKS (The)
6 reels. Mischa Auer, in a weird tale of thrills and suspense, eery shadows and sinister figures, sliding about in the gloom of the night. Rental $10.00. In Series $7.50 M.

MONTE CARLO NIGHTS
7 reels (Monogram). E. Phillips Oppenheim's thriller. Rental $6.00 A.

(E) MOONLIGHT SONATA
9 reels. Ignace Paderewski, Charles Farrell, Marie Tempest. Charm is the keynote of thsi beautiful and satisfying film. It opens with the pianist giving a recital in a crowded concert hall, and among his audience is a happy young couple. The story tells of their romance, how it was nearly broken, and how they were brought together again by Paderewski's music. Among the compositions played by this incomparable artist, are Chopin's "Polonaise in A Flat Major," Paderewski's "Minuet in G," Beethoven's "Moonlight Sonata," and Liszts "Second Hungarian Rhapsody." Rental with shorts, $15.00. In Series $12.50 K.

MOONSTONE (The)
7 reels. David Manners, Phyllis Barry. A Wilkie Collins mystery drama. Rental $4.00 B.

MOTIVE FOR REVENGE
7 reels. Donald Cooke, Irene Hervey. Mystery drama. Rental $6.00 A.

MOTORCYCLE SQUAD
7 reels (PRC). The motorcycle police thriller and detective story, starring Kane Richmond, Pauline Moore, John Miljan, Wynne Gibson. Rental $12.50. In Series $10.00 N.

MOVIE CRAZY
10 reels (Paramount). He crashes into a cinema company, in a comedy of errors. Rental $15.00. In Series $12.50 K.

(E) MOZART
8 reels. Stephen Haggart and Victoria Hooper, and the London Philharmonic Orchestra, conducted by Sir Thomas Beecham. Life and music of this great composer. Rental $20.00. In Series $17.50 S.

MR. BOGGS STEPS OUT
7 reels (Grand National). Stuart Erwin, Helen Chandler, Toby Wing, Tully Marshall. Droll comedy of a local man who wins a contest and invests the money in an abandoned barrel factory. Rental $9.0 [illegible] In Series $7.50 L.

MR. WISE GU [illegible]
7 reels. Ea [illegible] de Kids. He's looking for trouble, and they'll let him ha [illegible] Those East Side Kids versus a ruthless underworld kill [illegible] a fight to a finish. (LT.) Rental, $15.00. In Series $12 [illegible].

MR. WONG, [illegible] TECTIVE
8 reels (Monogram). Boris Karloff, Grant Withers. This picture has chills, suspense and an intriguing mystery. Rental $10.00. In Series $7.50 M.

MR. WONG IN CHINATOWN
8 reels (Monogram). Boris Karloff, Marjorie Reynolds, Grant Withers. The mystery of the murder of a Chinese princess. Rental $10.00. In Series $7.50 M.

MURDER AT DAWN
6 reels. Mischa Auer in a mystery story which keeps you guessing to the very last. Rental $10.00. In Series $7.50 M.

REMEMBER: FILMS CAN BE RETURNED HALF-RATE BY EXPRESS

MURDER AT GLEN ATHOL

7 reels. John Miljan, Irene Ware. Death followed in the wake a riotous house party. Rental $9.00. In Series $7.50 L.

MURDER BY INVITATION

7 reels (Monogram). Wallace Ford, Marian Marsh, Sara Padden. You are invited to a murder. The strange case of seven people who have an appointment with doom. Rental $15.00. In Series $12.50 K.

MURDER BY TELEVISION

7 reels. Bela Lugosi. A horror story to make you gasp and shudder. Rental $4.00 B.

MURDER IN A MUSEUM

7 reels. Henry B. Walthall, John Herron, Phyllis Barrington. You have been guessing wrong, until the last fifty feet of the film. Rental $10.00. In Series $7.50 M.

MURDER IN DIAMOND ROW

8 reels.(United Artists). Edmond Lowe, Sebastian Shaw, Anne Todd. Edgar Wallace story, in which Edmond Lowe is an ex-Scotland Yard inspector on the trail of a mysterious character. Rental $15.00. In Series $12.50 K.

MURDER IS NEWS

6 reels. John Gallaudet, Iris Meredith. Death prowls through a house of horror. Rental $10.00. In Series $7.50 M.

MUTINY AHEAD

7 reels. Neil Hamilton, Kathleen Burke. Sea thriller. Rental $6.00 A.

MUTINY IN THE BIG HOUSE

9 reels (Monogram). Charles Bickford, Barton MacLane, Dennis Moore. The story of a prison chaplain whose life is devoted to rebuilding the lives of broken men. This picture is dedicated to Father O'Neil, who received the Carnegie medal for quelling the Colorado State Penitentiary break of 1922. Rental $12.50. In Series $10.00 N.

(E) MY OLD KENTUCKY HOME

8 reels (Monogram). Evelyn Venable, Grant Richards and the Hall-Johnson Choir, which sings many of Stephen Foster's melodies. Rental $9.00. In Series $7.50 L.

MY SON, THE HERO

Patsy Kelly, Roscoe Karns, Joan Blair, Carol Hughes, Maxie Rosenbloom and Luis Alberni in a rip-roaring riot of fun. Rental $12.50. In Series $10.00 PR.

MYSTERIOUS MR. REEDER

7 reels (Monogram). Will Fyffe, Kay Walsh, John Warwick. Edgar Wallace speaks again in one of his great mystery stories. Rental $10.00. In Series $7.50 M.

MYSTERY LINER

7 reels. Noah Beery, Astred Allwyn. An Edgar Wallace sea thriller, with plenty of mystery aboard ship. Rental $4.00 B.

THE MYSTERY MAN

7 reels. Robert Armstrong, Maxine Doyle. This picture is described as one of the finest of the mystery dramas, by those who have seen it. Rental $9.00. In Series $7.50 L.

MYSTERY OF MR. WONG

8 reels (Monogram). Boris Karloff and Grant Withers. Another thrilling picture, dealing with James Lee Wong, famous Chinese detective. Rental $9.00. In Series $7.50 L.

MYSTERY OF ROOM THIRTEEN

9 reels. Gibb McLaughlin, Malcolm Keen, Leslie Perrins, Sally Gray, Florence Graves, Sara Seegar. A popular Edgar Wallace thriller. The story opens with Scotland Yard, baffled by superbly executed counterfeit notes, the work of a mysterious criminal knows as "The Big Printer." The detective, Mr. Reeder, sets about bringing this master minds to justice, aided by Johnny Gray, an "embryo" investigator, who purposely gets sent to prison to fraternize with the inmates, and obtain information. Many exciting adventures take place before the counterfeiter is finally unmasked. Rental $10.00. In Series $7.50 M.

MYSTERY PLANE

6 reels (Monogram). John Trent, Milburn Stone, Marjory Reynolds, in a "Tailspin Tommy" picture. Two pals are responsible for a new bombing device, in which the Army is interested, and save it from falling into the hands of spies. Rental $10.00. In Series $7.50 M.

MYSTERY TRAIN

6 reels. Bryant Washburn, Hedda Hopper, Marceline Day. Thrilling train wreck, and mystery throughout. Rental $4.00 B.

MYSTIC CIRCLE MURDER

7 reels. Betty Compson and Mrs. Harry Houdini. A picture based on Madam Houdini's ten-year vigil, hoping to speak to her husband. Rental $12.50. In Series $10.00 N.

(E) NATION AFLAME

8 reels. Noel Madison, Norma Trelvar, Lila Lee. This picture deals with an attempt to inflame a nation against so-called "foreigners." Rental $10.00. In Series $7.50 M.

NAVY SECRETS

7 reels. Fay Wray and Grant Withers in the adventures of a Navy G-man and his girl, who get caught in the toils of an international spy ring. Rental $10.00. In Series $7.50 M.

NAVY SPY

6 reels (Grand National). Conrad Nagle, Eleanor Hunt. Navy Lieutenant, spied on by foreign agents, is saved by the U. S. Secret Service. Rental $9.00. In Series $7.50 L.

NEATH BROOKLYN BRIDGE

7 reels. The East Side Kids. America's favorite rascals invade New York's danger zone. Action, terror and heart-stirring drama, seething up from New York's danger district, where kids have to fight to live. Rental $15.00. In Series $12.50 K.

NEVER TOO LATE

6 reels. Richard Talmadge. Stunts galore. Rental $6.00 A.

NEVER TOO OLD

6 reels. Richard Talmadge. Thrills and stunts a-plenty. Rental $6.00 A.

NIGHT ALARM

7 reels. Bruce Cabot, Judith Allen, H. B. Warner, Fuzzy Knight. The heroic story of a scrappy newspaper man's battle to enforce the fire prevention law. Rental $10.00. In Series $7.50 M.

NIGHT BEAT

6 reels. Jack Mulhall, Patsy Ruth Miller. A District Attorney persuades a gang leader to take a job as Chief of Detectives. Rental $10.00. In Series $7.50 M.

NIGHT CARGO

7 reels. Lloyd Hughes, Jacqueline Wells. Thrilling drama of the tropics. Rental $6.00 A.

A NIGHT FOR CRIME

Glenda Farrell, Lyle Talbot, Lina Basquette. A cozy murder, a mad romance. It's gay and ghoulish. Was it the star who was killed, or the mysterious "double"? Who was the midnight strangler? Murder mystery in a Hollywood blackout. Thrill-packed drama of the movies. Rental $12.50. In Series $10.00 PR.

NO RANSOM

7 reels. Leila Hymans, Philips Holmes, in Damon Runyon's great story, "The Big Mitten," is the inspiration for this fine comedy drama of a millionaire who, weary of living, seeks death, but find happiness instead. Rental $10.00. In Series $7.50 M.

(E) NORTHERN FRONTIER

6 reels. Kermit Maynard in a thriller by James Oliver Curwood. Rental $9.00. In Series $7.50 L.

(E) NORTH SEA PATROL

8 reels. Jeffrey Toone, Judy Kelly, John Wood, and Clifford Evans. A thrilling sea drama based on the present war. The British Navy provides the stirring and colorful background for a melodramatic mystery of daring and resourceful spies. We see destroyers at high speed and multiple quick firing anti-aircraft guns. Rental with shorts, $10.00. In Series $7.50.

NOTHING SACRED

8 reels. In beautiful NATURAL COLORS. Carole Lombard, Frederic Marsh, Charles Winninger, Walter Connolly. This is a picture of fun and hilarity. The setting is N. Y. night clubs, sumptious hotels, banquet halls, and penthouses — hilarious comedy-satire of Manhattan. Rental $20.00 per day. In Series $17.50. Apply for Weekly Rate.

NOW OR NEVER

5 reels. Mainly circus background, with many fascinating circus animals. Rental $10.00. In Series $7.50 M.

NUMBERED WOMEN

7 reels (Monogram). Human interest drama. Rental $6.00 A.

NUT FARM

7 reels. Wallace Ford, John Gale, Oscar Apfel. The amazing doings of a typical American family who have gone movie mad. Rental $7.50. In Series $6.00 C.

(E) OF MICE AND MEN

11 reels (United Artists). Burgess Meredith, Betty Fields, Lon Chaney, Jr., and Lewis Milestone, in a gripping movie version of Steinbeck's novel. Rental $17.50. In Series $15.00 HR.

OIL RAIDER

7 reels. Buster Crabbe as a plucky young engineer who bucks misfortune and refuses to quit under fire. Rental $7.50. In Series $6.00 C.

(E) OLD CURIOSITY SHOP (The)

9 reels. In this picture, Dickens' characters live again on the screen. Rental $9.00. In Series $7.50 L.

(E) OLD LOUISIANA

7 reels. Tom Keene. The story of the Louisiana Purchase. Rental $12.50. In Series $10.00 N.

(E) OLD SWIMMIN' HOLE (The)

8 reels (Monogram). Marcia Mae Jones and Jackie Moran. A horse-and-buggy doctor, fighting for lives in a backwoods town, takes the advice of a pair of 16-year-old experts. Rental $12.50. In Series $10.00 N.

(E) OLIVER TWIST

8 reels (Monogram). Dickie Moore in the title role. A vivid picturization of the great novel by Charles Dickens. Rental $9.00. In Series $7.50 L.

O'MALLEY OF THE MOUNTED

7 reels (20th Century-Fox). George O'Brien and Irene Ware. A Canadian police officer adheres to his duty regardless of every danger. Rental $12.50. In Series $10.00 N.

ONCE TO EVERY BACHELOR

7 reels. Marion Nixon, Neil Hamilton. A well-spiced comedy drama. $4.00 per day, no series rate. B.

ONE FOGGY NIGHT

Zasu Pitts and Claude Dampier. (7 reels). A riot of laughter. Rental $10.00. In Series $7.50.

ONE IN A MILLION

7 reels. Charles Starrett, Dorothy Wilson. Comedy drama. Rental $6.00 A.

(E) ONE MILLION B. C.

9 reels (United Artists). Victor Mature, Carole Landis, Lon Chaney, Jr. Hair-raising jungle encounter between gigantic cave bear and ferocious serpent. Entire tribe menaced by 100-ft. man-eater. Rental $17.50. In Series $15.00 HR.

ONE NIGHT IN PARIS

8 reels. Joan Marion, Hugh Williams, Franklin Bellamy, Judy Kelly. While the musical comedy goes on, there is murder back stage. Comedy, mystery and music all combined. Rental $12.50. In Series $10.00 N.

ONE RAINY AFTERNOON

9 reels (United Artists). Francis Lederer, Ida Lupino, Hugh Herbert, Roland Young. He walks into a movie show and greets a glorious girl next to him with a resounding kiss. Then the fun starts. Rental $17.50. In Series $15.00 R.

(E) ONE-THIRD OF A NATION

8 reels (Paramount). Sylvia Sidney, Leif Ericsson, Sidney Lumet. A mighty social drama. Setting in New York's slums, based on a sensational play that rocked Broadway. Rental $15.00. In Series $12.50 K.

ON PROBATION

7 reels. Monte Blue, Wm. Bakewell, Lucille Brown. Human interest story. Rental $6.00 A.

ON THE SPOT

7 reels (Monogram). Frankie Darro, Mary Kornman, Mantan Moreland. Frankie is loose again, and in plenty of trouble when he plays Sherlock, in streamlined fashion. Rental $12.50. In Series $10.00 N.

(E) ORPHAN BOY OF VIENNA

9 reels. A Viennese masterpiece featuring the Vienna Choir boys, accompanied by the Vienna Philharmonic Orchestra. Rental $17.50. In Series $15.00 R.

(E) ORPHANS OF THE NORTH

7 reels (Norman Dawn). A trapper and a flying heroine fight the barren kingdom of nature, to rescue a lost child. Rental $15.00. In Series $12.50 K.

(E) OTHELLO

5 reels. Verdi's grand opera, based on Shakepeare's drama. Sung in Italian. Rental $15.00. In Series $12.50 K.

(E) OUR DAILY BREAD

8 reels (United Artists). Karen Morley, Tom Keene, John Quallen. Deals with the struggle for daily bread, and shows how this was solved by some, and may be solved by all. Rental $15.00. In Series $12.50 K.

(E) OUR TOWN

8 reels (United Artists). William Holden, Martha Scott, Fay Bainter, Beulah Bondi, Thomas Mitchell, Guy Kibbee, Stuart Erwin, Frank Craven. It's Thornton Wilder's great story that won the Pulitzer Prize as a play, but it's your story, too—the story of an American town, its life, its tragedies, its happiness, its funnybone tickling humor. Rental $17.50. In Series $15.00 R.

OUTER GATE (The)

7 reels (Monogram). Ralph Morgan and Kay Linaker in Octavus Roy Cohen's celebrated novel, come to life on the screen. Rental $9.00. In Series $7.50 L.

(E) OUTSIDER (The)

7 reels. George Sanders. A genius who, without medical degree, effects marvelous cures on hopeless cripples, attempts to cure the crippled daughter of a great English surgeon. Rental $10.00. In Series $7.50 M.

PACK UP YOUR TROUBLES

6 reels. Starring Laurel and Hardy. Rental $15.00. In series $12.50 K.

(E) PAGLIACCI

9 reels. Richard Tauber and Steffi Duna, with Diana Napier. A musical story, based on the famous opera by Leoncavallo. THREE REELS ARE IN BEAUTIFUL NATURAL COLORS. Rental $17.50. In Series $15.00 R.

PALOOKA

9 reels (United Artists). Jimmy Durante, Stuart Erwin, Lupe Velez. It's a landslide of howls as Durante finds his way into every woman's heart. Rental $15.00. In Series $12.50 K.

PANAMA MENACE

7 reels (PRC). Roger Pryor, Virginia Hale and Lionel Royce in a story of the tropics—with melody, mirth and melodrama galore, and a background of suspense when a Government chemist finds that spies and crooks are speeding away in a stolen car, to see them plunge over a cliff, and he wins the girl he loves, after she helps him unravel the mystery. Program $12.50. In Series $10.00 PR.

PANAMA PATROL

7 reels. Leon Ames, Charlotte Winters. A spy ring tries to blow up the Panama Canal, but is thwarted. Rental $12.50. In Series $10.00 N.

PANTHER'S CLAW (The)

7 reels. Sidney Blackmer, Byron Foulger, Ricki Vallin, Herbert Rawlinson. Addle-headed fool? Or cunning criminal? This puzzling suspect in a brutal murder had the Police Commissioner stumped! Rental $12.50. In Series $10.00 PR.

PARADISE ISLE

8 reels (Monogram). Warren Hull and Movita. A simple Samoan girl and a blind shipwrecked artist, who sacrifices his civilization to return to the native girl he loves. Rental $10.00. In Series $7.50 M.

PARK AVENUE LOGGER

7 reels (RKO). George O'Brien and Beatrice Roberts. The story is laid in the great timberlands of the Northwest. A newcomer enters the logging business—and his sledgehammer fists soon command respect among the happy lumberjacks. Rental $15.00. In Series $12.50 K.

PASSPORT TO PARADISE

6 reels (Monogram). Jack Mulhall. He starts to travel around the world with nothing more than a pair of pants. Rental $10.00. In Series $7.50 M.

THE PAY-OFF

Lee Tracy, Tom Brown, Tina Thayer, Evelyn Brent, Jack LaRue, Ian Keith. "I'll clean up this rotten city government if they kill me," says Lee Tracy, in his role as a reporter who stops at nothing to gain his end and get his story! A thrill-shattering melodrama. Rental $12.50. In Series $10.00 PR.

(E) PECK'S BAD BOY

8 reels. Jackie Cooper, Jackie Searle and Dorothy Peterson. You will cry and laugh with Bill Peck in this humorous story. Rental $15.00. In Series $12.50 K.

(E) PECK'S BAD BOY AT THE CIRCUS

8 reels (RKO). Tommy Kelly, Ann Gillis, Edgar Kennedy. More adventures of the mischievous son of Bill Peck. Rental $17.50. In Series $15.00 R.

PERFECT CLUE (The)

7 reels. David Manners, Skeets Gallagher. Thrills sparkling with romance, bubbling over with humor and action. Rental $9.00. In Series $7.50 L.

PHANTOM BROADCAST

8 reels. Ralph Forbes, Gail Patrick and Big Boy Williams. Radio mystery. Rental $6.00 A.

PHANTOM FIEND (The)

7 reels. Ivor Novello, Elizabeth Allen. This picture is a chiller. Rental $10.00. In Series $7.50 M.

PHANTOM KILLER

7 reels. Dick Purcell, Joan Woodbury, Warren Hymer. Perfect crimes that defy detection. A deafmute by day—a murderous maniac by night, whose hands talked and dealt death in the darkness. (LT.) Rental $15.00. In Series $12.50 K.

PHANTOM OF CHINATOWN

7 reels (Monogram). Keye Luke, Lotus Long, Grant Withers. This Collier Magazine story by Hugh Wiley deals with a sinister killer striking unexpectedly. Rental $12.50. In Series $10.00 N.

(E) PHANTOM OF SANTA FE

6 reels. This NATURAL COLOR FILM is a covered wagon story, based upon historical fact. The attack on the covered wagon caravan, the runaway horses, the careening wagons pack this fine picture with exciting situations. Rental $15.00. In Series $12.50 K.

PHANTOM PATROL

6 reels. Jomes Oliver Curwood drama of mystery in the great outdoors. Rental $9.00. In Series $7.50 L.

PHANTOM SHIP

7 reels. Bela Lugosi. A weird mystery of the sea. Rental $4.00 B.

PILOT X

7 reels. Lona Andre, John Carroll. The mystery that defies solution until its strained tension breaks in an astonishing climax. Rental $10.00. In Series $7.50 M.

PLEDGE OF HONOR

8 reels. Thrilling human interest drama. Rental $6.00 A.

POLICE BULLETS

7 reels. Joan March and John Archer. An alluring beauty—a college hero—bring thrills galore, and laughter, too, as a police dragnet spreads and falls on a new wave of crime. (LT.) Rental $15.00. In Series $12.50 K.

POLICE ROOKIE

7 reels. Gordon Jones, Joyce Compton. A young police candidate was deprived of his shield, and dishonored. Then, on his own he breaks the wild beasts of the gang who tried to trip him up. Rental $12.50. In Series $10.00 N.

PORT OF HATE

6 reels. Polly Anne Young, Kenneth Harlan, Carlton Young. The discovery of an oyster bed, rich in pearls, forms the plot of this big-thrill story. Rental $9.00. In Series $7.50 L.

PORT OF LOST DREAMS

7 reels. Bill Boyd, Lola Lane, George Marion, Sr. Melodrama on board fishing schooner. $6.00 per day. No series rate, A.

PORT OF MISSING GIRLS

7 reels (Monogram). A singer hides herself on a boat, headed for the Orient, and finds herself in the midst of many happenings of an exciting nature. Judith Allen and Milburn Stone, with Harry Carey. Rental $9.00. In Series $7.50 L.

POT O' GOLD

9 reels. James Stewart, Paulette Goddard, Horace Heidt and His Musical Knights. Charles Winninger. There's millions in it—millions of laughs. Hit tunes, gorgeous girls, and millions of heart thrills as Jimmy tries to trap Paulette's heart. It's the screen's merriest romance set to swing. Hear these hit tunes: A Knife, A Fork and A Spoon — Hi, Cy, What's A-Cokkin' — Pete the Piper — Broadway Caballero — When Johnny Toots His Horn — Do You Believe in Fairy Tales? Rental $17.50. In Series $15.00 R.

PRIDE OF THE BOWERY

7 reels. East Side Kids. It's a riot of laughs as tenement toughies swap pool cues for picks and shovels, and find themselves behind the 8-Ball when they try to "take over the joint". (LT.) Rental $15.00. In Series $12.50 K.

PRIDE OF THE LEGION

8 reels. Victor Jory, Ralph Ince, Sally Blaine, Barbara Kent and Rin Tin Tin, Jr. Depicts brave efforts of a fearless policeman to regain his iron nerve after it has been shattered. Rental $10.00. In Series $7.50 M.

PRISONER OF CORBAL

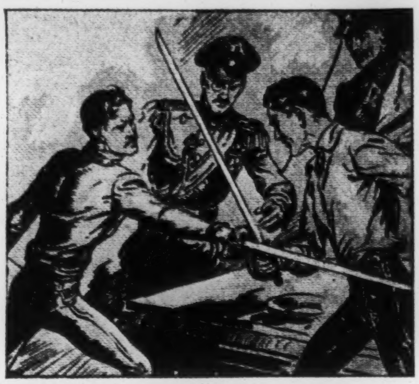
8 reels. Nils Asther and Noah Berry. From the most stirring of Raphael Sabatini's dramas, "The Marriage of Corbal." Rental $10.00. In Series $7.50 M.

(E) PRISONER OF JAPAN

7 reels. Stand by for the bombardment. Two brave American sweethearts die in each other's arms that others might live. Rental $12.50. In Series $10.00 PR.

(E) "THE PRISONER OF ZENDA"

Three great stars—Ronald Colman, Madeleine Carroll and Douglas Fairbanks, Jr.—unforgettably portray leading roles in the film dramatization of this legendary story by Anthony Hope. It's a tale of daring adventure . . . of regal romance and flashing swords and life-and-death intrigues. Each generation has thrilled anew to this romantic adventure, but never has there been a more stirring presentation than in this production. It will inflame the hearts of all who see it. Rental $17.50. In Series $15.00.



PRISON SHADOWS

7 reels. Eddie Nugent, Joan Barclay. Human interest story with prize-ring setting. Rental $6.00 A.

PRISON TRAIN

7 reels. Fred Keating and Linda Winters in an exciting story of a condemned prisoner en route to Alcatraz. Rental $10.00. In Series $7.50 M.

PRIVATE SNUFFY SMITH

7 reels. Bud Duncan, Edgar Kennedy, Sara Padden. Based on the comic strip of Barney Google and Snuffy Smith. Hilarious Snuffy Smith and his slow-burning "Sarge" will have you laughing your head off as they outmaneuver a whole army. Rental $15.00. In Series $12.50 K.

PROFESSOR'S GAMBLE (The)

7 reels (PRC). Cecilia Parker, Roger Pryor, in a whirlwind action story showing how three crooked gamblers matched wits with college professors—and lost! Rental $12.50. In Series $10.00 PR.

PUBLIC DEFENDER

7 reels. Richard Cortez, Joan Woodbury, Pat Gleason. Every scene's a shock as this daring investigator and the girl reporter follow a fearsome trail of homicide and corruption to trap a diabolically clever killer. (LT.) Rental $15.00. In Series $12.50 K.

PUBLIC OPINION

7 reels. Lois Wilson, Crane Wilbur, Shirley Grey, Luis Alberni. Human interest, with comedy relief. Rental $6.00 A.

(E) PUSS IN BOOTS

5 reels. An all-child cast in this delightful fantasy. Rental $10.00. In Series $7.50 M.

QUEEN OF BROADWAY

Rochelle Hudson and Buster Crabbe. Comedy drama at its best. She was a thoroughbred, this hardboiled Broadway girl who fought for her right to love and mother an orphan waif. Strong child interest. Rental $12.50. In Series $10.00 PR.

QUEEN OF THE YUKON

8 reels (Monogram). Charles Bickford and Irene Rich. A story of old Yukon days and the Queen who ruled the rough gold-diggers with hands of iron. Rental $12.50. In Series $10.00 N.

QUITTER (The)

7 reels. Emma Dunn, Charles Grapewin, and Wm. Bakewell. He was called a quitter, yet no one realized the sacrifice he made for his erring son. Story ends in happy restoration. Rental $7.50. In Series $6.00 C.

RACING BLOOD

7 reels. Frankie Darro, Kane Richmond. Frankie buys a crippled colts for a few dollars—and later it becomes the fastest horse to ever set foot on the turf. A Peter B. Kyne story. Rental $10.00. In Series $7.50 M.

RACING LUCK

6 reels (Republic). Bill Boyd and Barbara Worth. Story of a horse owner who meets disaster with a shrug, and victory with a smile. Rental $10.00. In Series $7.50 M.

RADIO FOLLIES

6 reels. Helen Chandler, Clifford Mollison, Teddy Joyce and His Swing Band in a riotous comedy of radio, with mirth and melody. Rental $9.00. In Series $7.50 L.

RADIO RANCH

7 reels. Gene Autry, Smiley Burnette, Frankie Darro and Betsy King Ross. As a singing fighter, and a fighting singer, Gene battles his way to victory. Rental $10.00. In Series $7.50 M.

RAIN

11 reels (United Artists). Joan Crawford, Walter Huston. Sadie Thompson did not pretend to be an angel, but she thought more of her own soul than did the reformer who prayed for her. Rental $15.00. In Series $12.50 K.

(E) RAINBOW ON THE RIVER

10 reels (RKO). Bobby Breen, May Robson and Charles Butterworth. Story of a young boy's attempt to escape the luxurious surroundings of his grandmother's mansion, to return to his negro mammy's humble cabin. Rental $15.00. In Series $12.50 K.

RAINBOW OVER BROADWAY

7 reels. Joan Marsh, Frank Albertson. Human interest story of brother and sister. Rental $4.00 B.

(E) RANGLE RIVER

7 reels. Victor Jory in Zane Grey's story of the heroes of Australia. Rental $10.00. In Series $7.50 M.

RAW TIMBER

6 reels. Tom Keene in the dynamic story of treacherous timber thieves, and their effort to rob the Government. Rental $10.00. In Series $7.50 M.

(E) REBELLION

6 reels. Tom Keene in a drama of turbulent days of California in 49. Rental $10.00. In Series $7.50 M.

REBELLIOUS DAUGHTERS

7 reels. Marjory Reynolds, Sheila Bromley in the compelling, human story of wayward daughters. Rental $12.50. In Series $10.00 N.

RECKLESS ROADS

7 reels. Judith Allen. Human interest melodrama. Rental $6.00 A.

RECKLESS WAY

7 reels. Marion Nixon, Inez Courtney, Kane Richmond, Malcolm MacGregor. Story of the danger and pitfalls that tempt one who rises to the giddy heights of fame in movieland. Rental $10.00. In Series $7.50 M.

RED BLOOD OF COURAGE

6 reels. Kermit Maynard in another fine story by James Oliver Curwood. Rental $10.00. In Series $7.50 M.

REDHEAD

7 reels (Monogram). June Lang, Johnny Downs. Based on the novel by Vera Brown, it is the revealing story of a girl who knew all about men, until the right one comes along. Rental $15.00. In Series $12.50 K.

RED SALUTE

9 reels (United Artists). Barbara Stanwyck and Robert Young. Two fugitive young lovers went over the border, and then found out they could not get back. Rental $15.00. In Series $12.50 K.

(E) REGULAR FELLERS

8 reels (PRC). Sara Padden, Roscoe Ates and an all-star Juvenile Cast. The most lovable all-American kids step out of the comic strip, on to the screen. Rental $12.50. In Series $10.00 N.

REMBRANDT

9 reels (United Artists). Charles Laughton portrays the life and love of the world's greatest artist, Rembrandt. Rental $17.50 In Series $15.00 R.

(E) REMEDY FOR RICHES

Jean Hersholt, Dorothy Lovett, Edgar Kennedy, Jed Prouty, Walter Catlett. A simple story, sparkling comedy and strong action characterize this new Dr. Christian film. The plot concerns itself with the efforts of a big city promoter to dupe the simple townsfolk of Rivers End into buying shares in a worthless piece of property for exorbitant prices. Complete Program $15.00. In Series $12.50.

"RENFREW OF THE MOUNTED" SERIES

CRASHING THROUGH
ON THE GREAT WHITE TRAIL
FIGHTING MAD
MURDER ON THE YUKON
YUKON FLIGHT
DANGER AHEAD
SKY BANDITS
RENFREW AND THE STOLEN TREASURE
RENFREW OF THE ROYAL MOUNTED

Rental $9.00 Each
In Series $7.50 L.

RESCUE SQUAD

7 reels. Ralph Forbes, Sheila Terry. Melodramatic romance, with intrigue, mystery action. Rental $6.00 A.

RETURN OF CASEY JONES

7 reels (Monogram). Charles Starrett and Jackie Searle in the exciting life of a railroad engineer. Rental $9.00. In Series $7.50 L.

RETURN OF CHANDU

7 reels. Bela Lugosi. Seven reels of breathless excitement, in the mystic realm of the occult. Rental $9.00. In Series $7.50 L. $7.50 L.

(E) RETURN OF THE SCARLET PIMPERNEL

10 reels (United Artists). Barry Barnes and Sophie Stewart. The Scarlet Pimpernel snatches innocent victims from the Guillotine, and overthrows the tyrant Robespierre. Rental $12.50. In Series $10.00 N.

REVENGE AT MONTE CARLO

7 reels. June Collyer. Mystery and suspense. Rental $6.00 A.

REVOLT OF THE ZOMBIES

7 reels. Dorothy Stone, Dean Jagger. Passionate romance of today, with a hidden, mystic secret of yeterday. Rental $10.00. In Series $7.50 M.

(E) RHODES

10 reels (Gaumont British). Walter Huston and Oscar Homolka in the history of the unification of South Africa. Rental $12.50. In Series $10.00 N.

RICH RELATIONS

7 reels. Ralph Forbes, Wesley Barry, Barry Norton, Mary Carr, Franklin Pangborn. Human interest thriller. Rental $6.00 A.

RIDING ON AIR

8 reels (RKO). He is a small-town newspaper man and an all-round "live wire." Rental $12.50. In Series $10.00 N.

RING AROUND THE MOON

7 reels. Donald Cooke. The powerful screen version of the best-selling novel of the same name, by Vera Hobart. Rental $12.50. In Series $10.00 N.

RIOT SQUAD

6 reels. Richard Cromwell and Rita Quigley. A girl has to have nerve to marry an undercover man. She never knows which kiss may be the last one, because the man she loves has the deadliest of all police assignments, stalking the killers of the underworld. (LT.) Rental $15.00. In Series $12.50 K.

RIP ROARING RILEY

6 reels. Lloyd Hughes, Grant Withers, Eddie Griffin. Comedy action and mirth. Rental $6.00 A.

ROADSHOW

Adolphe Menjou, Carole Landis, John Hubbard, Charles Butterworth, Patsy Kelly, George E. Stone, Pollyann Young, Marjorie Woodworth. Assorted nuts add SPICE and SNAP to this picture of the year. More gals, gags, gayety and tunes than ever blitzed the screen. Hear HIT TUNES by Hoagy Carmichael, featuring THE CHARIOTEERS, stars of HELLZAPOPPIN'. Hold still and get hocused for the LAUGH OF YOUR LIFE. Rental $17.50. In Series $15.00 HR.

HAL ROACH Presents
ROAD SHOW

(E) ROAD TO HAPPINESS

8 reels. John Boles, Mona Barrie, Billy Lee, Roscoe Karns. A picture with a heart. The moving story of a boy's love for his dad, and a father's devotion to his son, brought to you by a great star, and a youngster you will take to your heart. (LT.) Rental $15.00. In Series $12.50 K.

ROAR OF THE PRESS

7 reels (Monogram). Jean Parker, Wallace Ford. Terrifying escapades of a reporter who exposes the murder methods of notorious 5th column organization. Rental $12.50. In Series $10.00 N.

ROBOT PILOT

7 reels (PRC). Forrest Tucker and Evelyn Brent. The hero is trapped in the plane of a crazed killer, and catches an international spy. Rental $12.50. In Series $10.00 PR.

(E) RODEO RHYTHM

7 reels. Fred Scott and 30 Reckless Rough-Riding Rascals, including "Small Fry" and her pony. The Knapp Orphanage is in danger of foreclosure. The kiddies stage a RODEO to raise money to save it. What a rodeo it is! Also Fred Scott sings **"Rodeo Rhythm", "Short Stirrups", "Little Saddle", "Hitting The Trail", "Lullaby to a Little Cowboy".** Rental $15.00. In Series $12.50 K.

ROGUE OF THE RIO GRANDE

7 reels. Myrna Loy in a story of adventure on the border. Myrna sings two songs. This is the only picture available in 16mm. with this star, in which you hear her lovely voice. Rental $10.00. In Series $7.50 M.

ROGUES' TAVERN

6 reels. Wallace Ford. Detective Flavin tries to solve the most chilling murder mystery of his experience. Rental $7.50. In Series $6.00 C.

(E) ROMANCE OF THE LIMBERLOST

9 reels (Monogram). Jean Parker and Eric Linden in Gene Stratton Porter's wholesome and heartwarming story. Rental $10.00. In Series $7.50 M.

ROMANCE OF THE RIO GRANDE

7 reels. Eddie Nugent, Maxine Doyle, Fuzzy Knight. A Peter B. Kyne story of the Mexican border. Rental $4.00 B.

ROSE OF THE RIO GRANDE

7 reels (Monogram). Movita and John Carroll. The story of Mexico a hundred years ago. Rental $9.00. In Series $7.50 L.

ROUGH RIDING RHYTHM

6 reels. Kermit Maynard in a splendid drama by James Oliver Curwood. Rental $10.00. In Series $7.50 M.

RUBBER RACKETEERS

7 reels. Ricardo Cortez, Rochelle Hudson. Gangdom is moving in again with a "hot" rubber racket. First blazing expose of the deadliest public enemies to threaten you since G-Men cracked down on the underworld. (LT.) Rental $15.00. In Series $12.50 K.

SABOTAGE

6 reels. Victor Varconi. Exciting mystery and suspense drama. Rental $6.00 A.

SALESLADY

8 reels (Monogram). A bright comedy based on the difficulties of supporting love on a budget and the installment plan. Anne Nagel and Weldon Heyburn. Program $9.00. In Series $7.50 L.

(E) SAMARANG

7 reels (United Artists). She plunged to the side of her lover, and together they fought the killer-shark, for it was the law of Samarang that lovers must live or perish, together. Rental $15.00. In Series $12.50 K.

(E) SANDERS OF THE RIVER

10 reels (United Artists). Paul Robeson in a story of music and adventure. Rental $15.00. In Series $12.50 K.

SAPS AT SEA

7 reels (A Hal Roach Production). Rock with laughter as Laurel and Hardy put out to sea in a tidal wave of hilarious mishaps with mermaids. Rental $17.50. In Series $15.00 HR.

(E) SAVAGE GIRL

7 reels. Rochelle Hudson. Her realm is invaded by white hunters. Thrilling scenes as the jungle animals fall into the concealed snares. Rental $10.00. In Series $7.50 M.

(E) SAVAGE GOLD

7 reels. Commander Dyott's expedition into the wilds of Ecuador. Rental $10.00. In Series $7.50 M.

SCARFACE

Paul Muni, George Raft, Boris Karloff. Godless, loveless, heartless—he fought his brutal way up to the pinnacle of power, only to be challenged by a frail woman. More thrilling drama than you ever saw—and more to think about. A white-hot thunderbolt. **For Armed Forces Only).** Rental $15.00. In Series $12.50.

(E) SCARLET LETTER

8 reels. Colleen Moore, Hardy Albright in this great masterpiece by Nathaniel Hawthorne. Rental $10.00. In Series $7.50 M.

(E) SCARLET PIMPERNEL

11 reels (United Artists). Leslie Howard and Merle Oberon. The story of the French Revolution. Rental $15.00. In Series $12.50 K.

SCATTERGOOD BAINES FEATURES

STARRING

Guy Kibbee, Carol Hughes, John Archer, Francis Trout, Emma Dunn, Lee (Lassie) White and other notables.

Based on the Stories of Clarence Budington Kelland

1—SCATTERGOOD BAINES

Meet the sage of Coldriver with all his cronies that you have known for years.

2—SCATTERGOOD PULLS THE STRINGS

You'll be pulling for Scattergood as he tangles with a runaway boy, a teetering romance and an escaped murderer.

3—SCATTERGOOD MEETS BROADWAY

You'll chuckle as Scattergood outsmarts a couple of shoestring promoters, and the cutie they use for bait to prove the Big Town has a heart after all. **(Not available for Ohio schools.)**

Rental with Shorts $17.50 per program. In Series $15.00.

SCHOOL FOR GIRLS

7 reels. Sidney Fox and Paul Kelley. Life behind stone walls in a reform school. Rental $10.00. In Series $7.50 M.

(E) SCHUBERT'S SERENADE

8 reels. Lillian Harvey, Louis Jouvit, and the Paris Opera Chorus Ballet, with Orchestra. Based on Schubert's immortal music. Rental $17.50. In Series $15.00 R.

(E) SCHUBERT, THE MELODY MASTER

9 reels. Ilona Massey, Binnie Barnes, Albert Basserman, Alan Curtis. The tragic story of Franz Schubert, reflected in his immortal music. Know more of his life as you listen to "March Militaire", "Serenade", "Die Forelle', "Sheepshearing Music, and "Impatience". Hear the great Choir in Carnegie Hall sing his "Ave Maria". One of the most popular of all Schubert's songs is that instrumental melody from the famous "Unfinished Symphony", which is heard in the film. See portrayed the dramatic reason this great symphony remained unfinished. Rental $17.50. In Series $15.00 R.

(E) SCROOGE

9 reels. A true rendition of this traditional Christmas story. Rental $20.00. No series or weekly rate.

SECRET AGENT

9 reels (Gaumont-British). Madeleine Carroll, Peter Lorre and John Gielgud. A British Intelligence Officer, in the first World War. Rental $12.50. In Series $10.00 N.

(E) SECRET COLUMN (The)

8 reels. The fight against the Fifth Column, in the British Empire. Rental $12.50. In Series $10.00 N.

SECRET INVESTIGATOR

8 reels (PRC). Marjory Reynolds, Charles Quigley, Ward McTaggert, Kenneth Harlan. The district attorney, his pretty wife, and a smart trial lawyer, plus the timely testimony of an unexpected witness, make this the most realistic trial drama on the screen. The climax is terrific. Rental $12.50. In Series $10.00 PR.

SECRETS OF A CO-ED

Otto Kruger, Tina Thayer, Ricki Vallin. An intriguing drama of life in a co-educational. A campus and dormitory romance. Rental $12.50. In Series $10.00 PR.

(E) SECRET OF STAMBOUL (The)

8 reels. Valerie Hobson and Frank Vesper. A power-seeking Prince is frustrated from bringing back to Turkey customs that have been outlawed by modern minds. Rental $12.50. In Series $10.00 N.

SECRET OF WU SIN

7 reels. Lois Wilson, Grant Withers. A daring newspaper man and a girl reporter, braving the dangers of the Tong. Rental $7.50. In Series $6.00 C.

SECRET VALLEY (The)

7 reels (20th Century-Fox). Richard Arlen, Virginia Gray, Jack Mulhall in a spectacular stampede and rousing fights between hardboiled mobsters and hard riding ranchers. A Harold Bell Wright story. Rental $12.50. In Series $10.00 N.

SHADOWS OF THE ORIENT

7 reels (Monogram). Esther Ralston, Regis Toomey, J. Farrell MacDonald, Oscar Apfel, Sidney Blackmer. Scream and shout as loud as you like—but don't miss the thrills as the most beautiful girl in Frisco plays the dangerous game of love. Rental $10.00. In Series $7.50 M.

SHADOW STRIKES

6 reels (Grand National). Rod LaRocque, Lynn Anders, in a baffling murder mystery. Rental $10.00. In Series $7.50 M.

SHEER LUCK

6 reels. Jobyna Ralston, Nick Stuart. Human interest melodrama. Rental $4.00 B.

SHE HAD TO CHOOSE

7 reels. Buster Crabbe. Hilarious comedy drama. Rental $6.00 A.

SHE SHALL HAVE MUSIC

10 reels. Jack Hylton and his Orchestra, and June Clyde in a sparkling mixture of music and fantastic comedy, dealing with mutineers on the high seas. Rental $12.50. In Series $10.00 N.

SHE'S IN THE ARMY

7 reels. Lucille Gleason, Veda Ann Borg, Marie Wilson, Lyle Talbot, Warren Hymer. From the front row in the "glamour chorus", to the front line of duty, a snappy scrappy story of a night-club "deb" who proved she could take it, and dish it out, too. (LT.) Rental $15.00. In Series $12.50 K.

SHOCK

7 reels. Ralph Forbes, Melodrama of lost identity. Interesting. Rental $6.00 A.

SHOT IN THE DARK

7 reels. Charles Starrett, Marion Shilling. Murder mystery with college background. Rental $9.00. In Series $7.50 L.

SHOULD A GIRL MARRY

7 reels (Monogram). Warren Hull, Anne Nagel, Weldon Heyburn. The dramatic story of seven lives, changed by a blackmailer's threat. A thrilling scene in the operating room climaxes the picture, when the doctor is shot, and another has to operate. Then the happiness of six people depended on his skill. Rental $10.00. In Series $7.50 M.

SHRIEK IN THE NIGHT

7 reels. Ginger Rogers, Lyle Talbot. First-rate mystery drama. Rental $4.00 B.

(E) SIGN OF THE WOLF

8 reels (Monogram). Michael Todd and Grace Bradley. A Jack London story of amazing Alaska. Rental $12.50. In Series $10.00 N.

(E) SILENT BARRIERS

10 reels (Gaumont-British). Richard Arlen, Lilli Palmer, in the building of the Canadian Pacific railroad in historic situations. Rental $12.50. In Series $10.00 N.

SILENT CODE (The)

6 reels. Kane Richmond and Wolfang, king of dogs. Rental $10.00. In Series $7.50 M.

(E) SILENT ENEMY

6 reels. With an all-native cast, this picture is the story of the Hudson Bay Indians of old, and their fight against hunger. Rental $7.50. In Series $6.00 C.

SILKS AND SADDLES

6 reel. Herman Brix. A fast-moving comedy of the racetrack. The roar of the crowds—the thunder of hoofs as Lightning Lad flashes under the wire—a winner in the Entertainment Sweepstakes. Program $10.00. In Series $7.50 M.

SILVER LINING (The)

7 reels. United Artists release with Maureen O'Sullivan. She thought money gave her the right to do anything—A romance of modern youth—powerfully portrayed. Rental $6.00 A.

SILVER STALLION

7 reels (Monogram). David Sharpe, Chief Tonto Thunder Cloud. Rental $12.50. In Series $10.00 N.

(E) SILVER TRAIL (The)

6 reels. Rin Tin Tin, Jr. in a great drama by James Oliver Curwood. Rental $9.00. In Series $7.50 C.

SING, SINNER, SING

7 reels. Lew Cody, Leila Hyams. Mystery night club drama. Rental $6.00 A.

SING WHILE YOU'RE ABLE

7 reels. Pinky Tomlin and Toby Wing. He saves his father's business by putting on a radio program. Rental $10.00. In Series $7.50 M.

SISTER OF JUDAS

8 reels. Claire Windsor, John Herron, Holmes Herbert. Absorbing human interest drama. Rental $6.00 A.

SKIP TRACER

7 reels. James Dunn and Frances Gifford. A roaring comedy of budgets, buncoes, and bill collectors. Rental $10.00. In Series $7.50 M.

(E) SKULL AND CROWN

6 reels. Rin Tin Tin, Jr. A James Oliver Curwood story. Rental $10.00. In Series $7.50 M.

SKYBOUND

6 reels. Eddie Nugent, Lloyd Hughes, Grant Withers. Thrilling air patrol drama. Rental $6.00 A.

SKY DEVILS

Spencer Tracy, William Boyd, George Cooper, Ann Dvorak. A lightning-fast picture based on the adventures of three Americans in the last war. In it was used an air fleet of 55 planes to make the sensational flying sequences. One scene alone shows 50 ships in action above the clouds. **(For Armed Forces Only).** Rental $15.00.

SKY PATROL

7 reels (Monogram). A "Tailspin Tommy" story, in which John Trent, Marjory Reynolds, Jackie Coogan show how Tommy and his friends bring to justice a band of smugglers. Rental $10.00. In Series $7.50 M.

SKY RACKET (The)

7 reels. Herman Brix in a sizzling story of G-men who take to the air to hunt our country's enemies. Rental $12.50. In Series $10.00 N.

SKY SPIDER (The)

6 reels. Pat O'Malley in a story of the adventurous lives of three brothers, all airplane pilots. Rental $10.00. In Series $7.50 M.

SKYWAY

7 reels. Ray Walker, Lucien Littlefield. Comedy of the skies. Rental $6.00 A.

(E) SLALOM

8 reels. Marvelous skiing, produced in Switzerland. Rental $12.50. In Series $10.00.

SLANDER HOUSE

7 reels (PRC). Adrienne Ames, Craig Reynolds. A thrilling drama of fine people, cursed by scandal. Rental $12.50. In Series $10.00 PR.

SLIGHTLY HONORABLE

9 reels. Pat O'Brien, Edward Arnold, Broderick Crawford, Ruth Terry. They though they were smart-guys, until she "wised" them up. She knew everything about one thing—how to handle a man. A comedy drama bursting with action and thrills, with a most amazing climax of the year. Rental $17.50. In Series $15.00 R.

SLIGHTLY MARRIED

7 reels. Evelyn Knapp, Walter Byron, Marie Prevost. Human interest drama. Rental $6.00 A.

SLUMS OF NEW YORK

6 reels. The picture that brought Mickey Rooney to stardom. Rental $6.00 A.

SMALL TOWN BOY

6 reels (Grand National). Stuart Erwin, Joyce Compton. An insurance agent finds a $1,000 bill, which changes his whole outlook on life. This film is frequently used for discussion in classes on salesmanship and psychology. Rental $7.50. In Sereis $6.00 C.

SMART ALECKS

7 reels. East Side Kids and Maxie Rosenbloom. Those roughneck rascals are running wild again. Compared to the eastsiders a gorilla is a household pet. Wait til you see them slug it out to a finish with Slapsie Maxie Rosenbloom—and what a finish! (LT.) Rental $15.00. In Series $12.50 K.

SOCIAL ERROR

7 reels. Again we have the grownup kids of "Our Gang" in an entirely new comedy setting. Program $10.00. In Series $7.50 M.

SOCIETY FEVER

7 reels. Lois Wilson, Lloyd Hughes, Grant Withers, Hedda Hopper in a wildly funny farce comedy. Rental $4.00 B.

SOMETHING TO SING ABOUT

9 reels (Grand National). Jimmy Cagney as a band leader, with fine supporting cast with Mona Barrie, Gene Lockhart, in a musical travesty on certain phases of Hollywood life. Rental $15.00. In Series $12.50 K.

SON OF THE NAVY

8 reels (Monogram). Jean Parker, James Dunn. The Navy's in town—with an "adopted" son! A lonely orphan picks a gob as his "pop"—and the whole fleet plays godfather! Then the kid adopts a "mom" who'd sworn she'd never marry a sailor! Rental $12.50. In Series $10.00 N.

SONG OF FREEDOM

8 reels. Paul Robeson and an all-star cast, with an African setting. Paul Robeson at his best. Rental $15.00. In Series $12.50 K.

SONG OF THE TRAIL

6 reels. A James Oliver Curwood drama. Rental $12.50. In Series $10.00 N.

(E) SONS OF STEEL

7 reels (Monogram). Charles Starrett, Polly Anne Young, Wm. Bakewell, Eileen Pringle. A stirring drama of the roaring steel mills. Rental $7.50. In Series $6.00 C.

SONS OF THE DESERT

6 reels. Starring Laurel and Hardy. Rental $15.00. In Series $12.50 K.

SOS CLIPPER

7 reels (PRC). Ralph Byrd, Carol Hughes, Kenneth Harlan, Jack Mulhall. The setting is a ship, cruising in the West Indies, carrying some stranded American chorus girls and a lively newspaper correspondent. Rental $12.50. In Series $10.00 PR.

SO'S YOUR AUNT EMMA

7 reels. Zasu Pitts and Roger Pryor, Warren Hymer. Zasu steps out, and the underworld steps in. Every day is April Fool's Day when the guys and dolls of gangland mistake Aunt Emma for a gunmoll from Missouri. (LT.) Rental $15.00. In Series $12.50 K.

SOUDAN

6 reels. An epic of the "Grass" and "Chang" type, but with greater personification of tribal traits, in individual native players. Rental $12.50. In Series $10.00 N.

SOUTHERN MAID

6 reels. Bebe Daniels, Lupino Lane. Romantic comedy drama. Rental $4.00 B.

SOUTHERN ROSES

7 reels. Neil Hamilton, George Robey. Mad, merry musical masquerade for laughing purposes only. Rental $10.00. In Series $7.50 L.

(E) SOUTH SEAS (The)

6 reels. Mr. and Mrs. Gifford Pinchot's famous expedition to the romantic areas. Rental $12.50. In Series $10.00 N.

SPECIAL AGENT K-7

7 reels. Walter McGrail, Queeny Smith in a thrilling story based on the famous radio secret service sensations, deals with the work of the FBI and how one of them postponed his retirement to bring his man to justice. Rental $7.50. In Series $6.00 C.

SPECIAL INSPECTOR

6 reels. Charles Quigley, Rita Hayworth. Thrilling melodrama of Canadian border life. Rental $6.00 A.

SPEED DEVILS

6 reels. Paul Kelley, Margaret Churchill. Racetrack thriller. Rental $6.00 A.

SPEED LIMITED

6 reels. Ralph Graves, Evelyn Brent, Claudia Dell. Unlimited action in this fastest, most spectacular G-man drama ever shown on the screen. Rental $7.50. In Series $6.00 C.

SPEED MADNESS

6 reels. Richard Talmadge. He got the contract his father was about to lose, through a series of hair-raising stunts and experiences. Rental $10.00. In Series $7.50 M.

SPHINX (The)

7 reels. Lionel Atwood. Mystery drama. Rental $4.00 B.

SPIRIT OF YOUTH

6 reels. An all-Negro cast with Joe Louis, the King of the Prizefight, in a throbbing story based on his own life. Rental $15.00. In Series $12.50 K.

SPOOKS RUN WILD

7 reels. East Side Kids and Bela Lugosi. It's enough to make a ghost have a nervous breakdown. Imagine six scrap-happy rascals running wild in a haunted house! They scare the devil out of Mr. Dracula, play hide and seek in torture chambers, and they trap monsters. It's CHILLARIOUS. (LT.) Rental $15.00. In Series $12.50 K.

SPORTING CHANCE

7 reels. Claudia Dell, Buster Collier. Fast-moving drama of racing and romance. Rental $4.00 B.

SPY OF NAPOLEON

8 reels. Richard Bartholomew. Plots and counterplots in the reign of the last of the Bonapartes. Rental $10.00. In Series $7.50.

STAND-IN

10 reels (United Artists). Leslie Howard, Joan Blondell, Humphrey Bogart and Alan Mowbray in a rich drama of lights, action, camera and laughs in a Hollywood studio setting. Bankers tear their hair, directors weep, and lovely stand-ins nearly wreck the stars in this brilliant comedy drama by Clarence Budington Kelland. Rental $17.50. Series $15.00. Weekly Rental $30.00. Series $25.00 R.

STAR IS BORN (A)

11 reels. In beautiful NATURAL COLORS. Janet Gaynor, Frederic Marsh. Janet Gaynor as the lovable Vicki Lester, the shy young girl from the country town, makes good in Hollywood. Overnight, this girl's name is on the tip of every tongue, from Maine to California. "A Star has been born". Rental $20.00 per day. In Series $17.50. Apply for Weekly Rate.

STAR REPORTER

7 reels (Monogram). Warren Hull, Marcia Hunt. Thrilling drama of a young, idealistic newspaper owner who uses his paper as an instrument of public good. Rental $9.00. In Series $7.50 L.

STEP ON IT

6 reels. Richard Talmadge. Motorcycle stunts galore. Rental $6.00 A.

STOLEN SWEETS

7 reels. Sally Blaine, Charles Starrett. The richest girl in the world discovers that denying her love for a poor man does not bring happiness. Rental $9.00. In Series $7.50 L.

STRANGE ADVENTURE

7 reels. Regis Toomey, June Clyde. Who killed Silas Wayne? Rental $10.00. In Series $7.50 M.

STRANGERS OF THE EVENING

8 reels. Zasu Pitts, Lucien Littlefield. Murder mystery with plenty of comedy. Rental $6.00 A.

STREAMLINED EXPRESS

8 reels. Evelyn Venable, Victor Jory, Vince Barnett. Cross-country comedy drama. Rental $6.00 A.

STREET SCENE

10 reels (United Artists). Sylvia Sidney. The heartbreaks and joys and sorrows seen on any city street in 24 hours. Rental $12.50. In Series $10.00 N.

STREETS OF NEW YORK

8 reels (Monogram). Jackie Cooper and Martin Spellman. Supporting himself by running a newsstand, and going to night school to study law, he clashes with his brother, who is Public Enemy No. 1. Rental $12.50. In Series $10.00 N.

STUDY IN SCARLET

7 reels. Classic Sherlock Holmes story by A. Conan Doyle. Rental $10.00. In Series $7.50 M.

STUNT PILOT

7 reels (Monogram). A "Tailspin Tommy" drama of airplane battles thousands of feet above the earth, prove the innocence of a man unjustly accused. Rental $10.00. In Series $7.50 M.

SUCCESSFUL FAILURE

7 reels. Wm. Collier, Jr., Lucille Gleason, Russell Hopton. Heartgripping human interest drama. Rental $6.00 A.

SUICIDE LEGION

6 reels. Tullio Carminati and Lilli Palmer. An unusual blend of light music and exciting drama. The heroine's husband and brother are pitted against each other, one a flyer and the other a spy. The husband loses both fortune and wife, and wanders around the Orient, crooning in cafes, and hunting for a woman who left him. Rental with shorts, $12.50. In Series $10.00 N.

SUICIDE SQUAD

6 reels. Norman Foster, Joyce Compson. A thundering drama of the rescue squads—fire and flood and danger, every day, for this group of heroes. Rental $7.50. In Series $6.00 C.

SUNSET MURDER CASE (The)

7 reels. Sally Rand. World's best known dancer, in a story of mystery and music. Rental $12.50. In Series $10.00 N.

SWAMP WOMAN

8 reels (PRC). Ann Corio, Jack LaRue. Life in the swamp lands blazed into primitive battle for her love, until a man worth loving—even worth dying for—came into her life. Then she became a real woman. Rental $12.50. In Series $10.00 PR.

SWEEPSTAKE ANNIE

8 reels. Tom Brown, Marion Nixon. Romantic comedy drama. Rental $6.00 A.

SWEETHEART OF SIGMA CHI

7 reels. Ted Fio Rito, Mary Carlisle, Buster Crabbe, with Ted's Orchestra. Beauty, college life, romance and fun in this fine production. Rental $9.00. In Series $7.50 L.

SWEETHEART OF THE NAVY

6 reels (Grand National). Eric Linden, Cecilia Parker, Roger Imhoff, Bernadine Hayes. When the fleet comes in, there is a boxing bout, with music and hilarity. Rental $7.50. In Series $6.00 C.

SWING IT, PROFESSOR

6 reels. Pinky Tomlin, Paula Stone and the Hobo Male Chorus, in a fine story of rural life and big city folks. Rental $9.00. In Series $7.50 L.

SWING IT, SAILOR

6 reel (Grand National). Wallace Ford, Isabel Jewell. Comedy drama of gobs. Rental $6.00 A.

SYMPHONY OF LIVING

7 reels. Evelyn Brent, Al Sheen, in the dramatic story of a grand old musician, his triumphs, failures, heartaches, and happiness. Rental $9.00. In Series $7.50 L.

TAKE THE STAND

7 reels. Jack LaRue, Gail Patrick, Russell Hopton. Intriguing mystery drama. Rental $6.00 A.

TAMING THE WILD

6 reels. Rod LaRocque, Maxine Doyle. Fast-moving comedy drama. Rental $6.00 A.

TANGLED DESTINIES

7 reels. Vera Reynolds, Glenn Tryon. Shivering mystery drama. Rental $6.00 A.

TANGO

7 reels. Marion Nixon, Warren Hymer, Franklin Pangborn. Thrilling human interest story. Rental $6.00 A.

TARGET FOR TONIGHT

5 reels. This is the story of six men who flew a British bomber to Germany and flew it home again. It happens every day and night. This is one of the best films of the war. The men who made it are pilots, observers, gunners and ground staff of Bomber Command, Royal Air Force. Service Charge $2.50.

TARZAN AND THE GREEN GODDESS

8 reels. Edgar Rice Burroughs in one of his very best stories. This chapter of Tarzan's life deals with his quest for the Green Goddess in the Guatemalan jungle. Rental $9.00. In Series $7.50 L.

TARZAN'S REVENGE

8 reels (20th Century-Fox). Glenn Morris and Eleanor Holm. See the spectacular battle of the jungle tribes, the daring raid on the palace, the fight for life in the river of white crocodiles. Rental $15.00. In Series $12.50 K.

TELEPHONE OPERATOR

7 reels (Monogram). Judith Allen, Grant Withers, Warren Hymer, Alice White. Story of a telephone linesman who risked his life to carry communication to outlying spots. Rental $9.00. In Series $7.50 L.

(E) TELLTALE HEART

5 reels. Edgar Allen Poe's deep story of a troubled conscience. Rental $12.50. In Series $10.00 N.

TEN LAPS TO GO

7 reels. Rex Lease, Muriel Evans, Duncan Rinaldo, Tom Moore. A supercharged, multiple thrill drama that burns up the screen. Rental $10.00. In Series $7.50 N.

(E) TEN NIGHTS IN A BAR ROOM

8 reels. This old popular melodrama, well played with Wm. Farnum in the stellar role. Program $15.00. In Series $12.50 K.

TERROR (The)

8 reels (Monogram). Wilfred Lawson, Linden Travers. An Edgar Wallace mystery comedy that keeps one on the edge of the seat, with suspense and thrills. Rental $10.00. In Series $7.50 M.

TERROR OF TINY TOWN

7 reels. Jed Buell's Midgets. A hundred little Tom Thumbs go to town. Rental $12.50. In Series $10.00 N.

TEST (The)

6 reels. Rin Tin Tin, Jr. triumphs again. Rental $9.00. In Series $7.50 M.

THANKS FOR LISTENING

7 reels. Pinky Tomlin, the Brian Sisters and Henry Roquemore in a musical comedy drama with plenty of instrumentation. Rental $9.00. In Series $7.50 L.

THAT GANG OF MINE

7 reels (Monogram). East Side Kids in an appealing story of a gang of boys who are always doing exciting things. Rental $12.50. In Series $10.00 N.

THAT UNCERTAIN FEELING

9 reels. Merle Oberon, Melvyn Douglas, Burgess Meredith, Alan Mowbray, Sig Rumann. Directed by Ernest Lubitsch. The laugh is on us. Have fun—the Lubitsch way—as tempting Merle gets joyously involved in a 3-cornered game of "don't kiss me now—here he comes". What more exciting playmates can a girl ask for than smooth Melvyn Douglas and charming Burgess Meredith? Rental $17.50. In Series $15.00.

THERE GOES MY HEART

9 reels (United Artists). Frederick March and Virginia Bruce. She tried to laugh off a million dollars but was hungry for a hamburger. Rental $17.50. In Series $15.00 R.

(E) THEY MEET AGAIN

Jean Hersholt, Dorothy Lovett. Another heart warming picture of this series, in which this small town doctor saves an innocent man from a long prison sentence and brings about the recovery of the man's daughter from a serious illness. The dramatic story is combined with a fine musical score. Complete Program $15.00. In Series $12.50.

(E) THEY RAID AT NIGHT

7 reels. Lyle Talbot, June Duprez. Men who dare that they may live! An American joins the Commandos . . . and shows the Nazis something new in all-out action! Rental $12.50. In Series $10.00 PR.

(E) THINGS TO COME

10 reels (United Artists). Raymond Massey in H. G. Wells' astounding story of the next 100 years. Rental $15.00. In Series $12.50 K.

THIRTEENTH GUEST (The)

7 reels. Ginger Rogers and Lyle Talbot in a thrilling mystery story. Rental $9.00. In Series $7.50 L.

THIRTEENTH MAN

8 reels (Monogram). A District Attorney is mysteriously killed —and a radio ace solves the crime. Rental $9.00. In Series $7.50 L.

THE 39 STEPS

Robert Donat, Madeleine Carroll. "The 39 Steps" has been hailed as the greatest thriller ever shown on the screen. The famous Alfred Hitchcock technique has been copied and recopied by nearly every film-maker all over the world. "The 39 Steps" is the screen's outstanding suspense picture. Added to that, it has a terrific love story and sensational performances by Robert Donat and Madeleine Carroll. This is the picture that made them stars. This is the picture that made Alfred Hitchcock one of the top directors of the screen. Rental $15.00. In Series $12.50 K.

THOROUGHBRED

6 reels. Toby Wing, Kenneth Duncan and Wheeler Oakman. Racketeers in racing . . . the inside story of the girl who played a long shot to beat the crooked gambling ring at its own game! Rental $7.50. In Series $6.00 C.

THREE OF A KIND

8 reels. Evalyn Knapp, Chick Chandler, Berton Churchill, Patricia Farr, Richard Carle and Bradley Page. A rollicking comedy drama, dealing with the misadventures of a newly-rich laundry man out for a quick cleanup in high finance, and a trio of jailbirds on a hilarious flight into high society. Rental with one short $10.00. In Series $7.50 M.

THRILL OF YOUTH

7 reels. June Clyde, Dorothy Peterson. Melodrama of youth. Rental $6.00 A.

(E) THUNDERBOLT

6 reels. The dog star, Thunderbolt, in a thrilling drama. Rental $10.00. In Series $7.50 M.

THUNDER IN THE CITY

Edward G. Robinson, Luli Deste, Nigel Bruce, Constance Collier. The desperate cry of ruined millions ringing in his ears! The tender whisper of one woman tearing at his heart! At last . . . here's a picture that unleashes the full fury of Robinson's power to blast the screen with dramatic dynamite . . . that racks you right back on your heels! Rental $15.00. In Series $12.50 K.

(E) TIMBERESQUE

5 reels. Barry Norton, Vyola Vaughn, Harold Nelson, Paul Ellis, Christina Montt, Billy Steener, and "FLASH" (the dog with the human brain). A mighty story of the High Sierras, where might is right in nature's struggle for supremacy. He left civilization, and went to dwell with the beasts of field and forest. How he got back to civilization is a thrilling story, and the study of animal life in the High Sierras has fine educational value. Rental with shorts, $12.50. In Series $10.00 N.

TIMBERLAND TERROR

8 reels. Frank Leighton, Shirley Anne Richards in unprecedented thrills as 50 acres of towering giants crash with thunder-like roars into the valley below. Rental $12.50. In Series $10.00 N.

TIMBER TERRORS

6 reels. Excellent drama of Horse and Dog. Rental $10.00. In Series $7.50 M.

TIMBER WAR

6 reels. Kermit Maynard in a lively Curwood drama. Rental $10.00. In Series $7.50 M.

(E) TITANS OF THE DEEP

5 reels. Hair-raising adventures into the unknown. Dr. William Bebe and Otis Barton story, and narration by Lowell Thomas. See girl in knife fight with devil fish. See battle between boa constrictor and marine crocodiles. See these and many other thrills and amazing sights actually filmed on the floor of the ocean. Program $12.50. In Series $10.00 N.

TODAY I HANG

7 reels (PRC). Walter King, Mona Barrie, Wm. Farnum. It's not execution—it's Murder. Three people know he is innocent, yet seal their lips as he goes to the gallows. Rental $12.50. In Series $10.00 PR.

TOMBOY

8 reels (Monogram). Marcia Mae Jones and Jackie Moran. A bashful country boy and a battling big city girl team up to lick a gang of dangerous crooks. Rental $12.50. In Series $10.00 N.

TOMORROW WE LIVE

Ricardo Cortez, Jean Parker. The ghost was woman-crazy, but the Desert Girl tamed him! Rental $12.50. In Series $10.00 PR.

TONIGHT OR NEVER

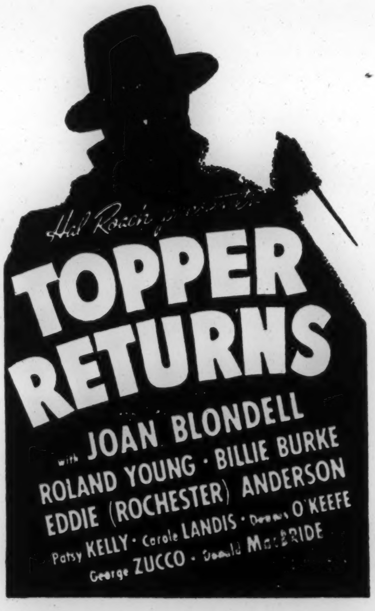
9 reels (United Artists). Gloria Swanson, Melvyn Douglas, Allison Skipworth, Boris Karloff. The screen adaptation of the romantic comedy, by Lili Hatvany, and produced on the stage by the great David Belasco. Rental $15.00. In Series $12.50 K.

TOO MANY WOMEN

7 reels (PRC). Neil Hamilton and June Lang, with Joyce Compton. They think he has a million, but he hasn't a dime. But it's all fair in love and husband-hunting, and he could take it. Rental $12.50. In Series $10.00 PR.

TOPPER RETURNS

Joan Blondell, Roland Young, Billie Burke, Eddie ("Rochester") Anderson, Patsy Kelly, Carole Landis, Denis O'Keefe, George Zucco, Donald McBride. Topper's back, having girl trouble again. He's a super-snooper trying to "find the little girl who wasn't there." What a riot of fun when Topper and his glamorous new ghost make a MIRTHQUAKE out of a MYSTERY and a MADHOUSE out of a MURDER. Rental $17.50. In Series $15.00 HR.


Hal Roach presents
TOPPER RETURNS
with JOAN BLONDELL
ROLAND YOUNG · BILLIE BURKE
EDDIE (ROCHESTER) ANDERSON
Patsy KELLY · Carole LANDIS · Dennis O'KEEFE
George ZUCCO · Donald MacBRIDE

TOPPER TAKES A TRIP

8 reels (Hal Roach). Constance Bennett and Roland Young. Go along with Topper on another joyous journey of zaney hilarity, with every roaring laugh as broad as the Atlantic. Rental $17.50. In Series $15.00. $35.00 Weekly. Monthly Rate $105.00 HR.

TOP SERGEANT MULLIGAN

7 reels. Nat Pendleton, Marjorie Reynolds, Sterling Holloway. AT-TEN-SHUN! He's got a roar like a cannon, an eye like a bombsight, and a temper that goes higher than a stratosphere plane. Meet the toughest "Top Kick" in the U.S.A. in the roaringest comedy of army life ever filmed. (LT.) Rental, $15.00. In Series $12.50 K.

(E) TORPEDOED

7 reels. H. B. Warner, Richard Cromwell, Robert Douglas, Noah Beery, Hazel Terry. Timeliest picture of the year! Rated three stars by the Daily News. Authentic pictures of the British Fleet in action, in addition to a stirring love story crammed with action. Rental $12.50. In Series $10.00 N.

TORTURE SHIP

7 reels (PRC). Lyle Talbot, Irving Pichel, Jacqueline Wells. A Jack London story of the stormy seas. Rental $10.00. In Series $7.50 M.

TOUGH KIDS

6 reels (Monogram). Frankie Darro, Dick Purcell and Judith Allen. The heartwarming story of a youngster who never had a chance—who was tough because he did not know how to be anything else. Rental $10.00. In Series $7.50 M.

TOUGH TO HANDLE

6 reels. Frankie Darro, Kane Richmond. A Peter B. Kyne action story. Rental $6.00 A.

TRADE WINDS

10 reels. Frederic Marsh, Joan Bennett, Ralph Bellamy, Ann Southern, Sidney Blackmer, Thomas Mitchell. It's a whirlwind of romance on the run. It's a hurricane of laughs. It's a tornado of tropic travel. It's a typhoon of whirling, thrill-packed action. Rental $17.50. In Series $15.00 R.

TRAIL OF THE HAWK

6 reels. Yancey Lane in a James Oliver Curwood story. Rental $12.50. In Series $10.00 N.

TRAILS OF THE WILD

6 reels. Kermit Maynard in one of the popular stories by James Oliver Curwood. Rental $12.50. In Series $10.00 N.

TRANSATLANTIC MERRY-GO-ROUND

10 reels (United Artists). Jack Benny, Gene Raymond, Nancy Carroll. A stunning girl show, with plenty of music and a "dark murder mystery." Rental $15.00. In Series $12.50 K.

(E) TRANSATLANTIC TUNNEL

9 reels (Gaumont-British). Richard Dix, Madge Evans, George Arliss. A prophecy showing a determined engineer and his faithful workmen, driving through a tunnel between England and the American side. Rental $12.50. In Series $10.00 N.

TRAPPED

6 reels. Nick Stuart, Nina Quartaro. On interesting drama with action and humor. Rental $4.00 B.

(E) TRIUMPH OF SHERLOCK HOLMES

8 reels. Arthur Wontner in one of the mystifying series of Sherlock Holmes. Rental $7.50. In Series $6.00 C.

TUMBLEWEEDS

9 reels. Wm. S. Hart in the story of the Cherokee Landstrip in 1889. Rental $12.50. In Series $10.00 N.

(E) TUNDRA

8 reels (Carl Laemmle). The "Flying Doctor" risks his life battling the unleashed fury of the elements and the wild animals of Alaska, to save the isolated villages of the country. Rental $17.50. In Series $15.00 R.

TURF BOY

7 reels (PRC). Buzzy Henry, James Seay, Dorris Day, Francis X. Bushman, Clara Kimball Young and Jim Jeffries. They risk their all in a broken down race horse. Rental $12.50. In Series $10.00 N.

TURNABOUT

9 reels (United Artists). Adolph Menjou, Carole Landis, John Hubbard. A young couple were bored with their lot. They envied each other, but finally exchanged jobs and places. Rental $17.50. In Series $15.00 R.

23½ HOURS LEAVE

7 reels (Grand National). James Ellison, Terry Walker, Morgan Hill, Arthur Lake. The comedy classic of the irrepressible sergeant on leave. Rental $10.00. In Series $7.50 M.

TWIN HUSBANDS

7 reels. John Miljan, Shirley Gray, Neil Hamilton. A crazy, laugh-mad picture. Rental $6.00 A.

TWO MINUTES TO PLAY

7 reels. Herman Brix, Tense moments, pregnant with breathless thrills, in the great football classic. Rental $10.00. In Series $7.50 N.

(E) TYPHOON TREASURE

8 reels (United Artists). Campbell Copelin, Given Munro. An Australian jungle and sea story with many fine underwater scenes. Rental $9.00. In Series $7.50 L.

UNDERCOVER AGENT

6 reels (Monogram). Oscar O'Shea, Maud Elburn, J. M. Kerrigan, Russell Gleason, Shirley Deane. A young postal inspector, suspended from service, spends his free time tracking down a gang of counterfeiters who are using the mails to defraud. Exciting. Rental $10.00. In Series $7.50 M.

UNDERCOVER MEN

7 reels. Charles Starrett and Adrienne Dore in a Northwest Mounted story. Rental $10.00. In Series $7.50 M.

UNDER SECRET ORDERS

6 reels. J. Ferrell MacDonald and Don Alvarado in the thrilling adventures of an American Banker in a South American revolution. Rental $10.00. In Series $7.50 M.

UNDER STRANGE FLAGS

7 reels. Tom Keene in an authentic drama of Mexico during the people's revolution. Rental $10.00. In Series $7.50 M.

UNDER THE BIG TOP

7 reels. Anna Nagel, Marjorie Mains, Jack LaRue, Grant Richmond. The love story of the world's greatest aerial star. A thrilling climax is enacted 50 feet in the air. Trials and triumphs of circus people. Rental $10.00. In Series $7.50 M.

UP IN THE AIR

7 reels (Monogram). Frankie Darro, Marjorie Reynolds, Mantan Moreland. Murder in a broadcasting station, and trouble-seeking Frankie auditions for the police. Rental $12.50. In Series $10.00 M.

VALLEY OF TERROR

6 reels. Kermit Maynard in a James Oliver Curwood story. Rental $12.50. In Series $10.00 N.

VALLEY OF WANTED MEN

6 reels. A Peter B. Kyne story starring Frankie Darro and Roy Mason. A fast and furious story in which a man proves his innocence. Rental $7.50. In Series $6.00 C.

VENGEANCE OF RANNA

6 reels. Rin Tin Tin, Jr. meets up with the vengeance of his enemies. Rental $9.00. In Series $7.50 L.

(E) VENGEANCE OF THE DEEP

8 reels. Lloyd Hughes and Shirley Ann Richards in a South Seas story—a thundering avalanche of action and thrills—a struggle for life in a wild quest for secret treasure. Rental $9.00. In Series $7.50 L.

VENGEANCE RIDES THE SEA

7 reels. Ralph Ince. An exciting story of a mutiny aboard a tramp steamer. Rental $12.50. In Series $10.00 N.

WALLABY JIM OF THE ISLANDS

6 reels (Grand National). George Houston and Ruth Coleman in a vigorous story of the pearl fishing in the South Seas. Rental $7.50. In Series $6.00 C.

WALLACE FAMILY (The)
(**Or, Red Lights Ahead.**) 7 reels. Andy Clyde. The effect of sudden wealth upon the Wallace family brings hugh laughs. Rental $9.00. In Series $7.50 L.

(E) WANDERING JEW (The)
9 reels. Conrad Veidt in an excellent picturization of this famous novel by Eugene Sue. Rental $9.00. In Series $7.50 L.

WANTED BY THE POLICE
6 reels (Monogram). Frankie Darro, Evelyn Knapp. Frankie as a mechanic in a garage, is caught in the entanglement of a "hot car" racket—but he wins out. Rental $10.00. In Series $7.50 M.

(E) WAR DOGS
7 reels. Billy Lee, Addison Richards, and "ACE"—the wonder dog. "A feller's got to do his bit". You'll love this grand story of an American boy who wanted his dog to become a soldier. It's straight to the heart drama. (LT.) Rental $15.00. In Series $12.50 K.

WARE CASE (The)
8 reels (20th Century-Fox). Clive Brook, Jane Baxter, Barry K. Barnes. Is circumstantial evidence reliable? Rental $12.50. In Series $10.00 N.

WAY DOWN SOUTH
7 reels (RKO). Bobby Breen and the Dixie Dancers. Two lovable, scheming rascals battle the glooms with joy. Rental $12.50. In Series $10.00 N.

WELCOME DANGER
10 reels (Paramount). Uproarious adventures of a timid young botanist. Rental $15.00. In Series $12.50 K.

WE'RE IN THE LEGION NOW
6 reels (Grand National). Reginald Denny, Esther Ralston, Eleanor Hunt, Vince Barnett. The story of two Americans in the Foreign Legion, with service in Arabia. Rental $9.00. In Series $7.50 L.

WESTLAND CASE
7 reels (Universal). Preston Foster, Carl Hughes, Frank Jenks, Barbara Pepper. Detective Crane's unusual powers of deduction solve this baffling mystery. Rental $12.50. In Series $10.00 N.

WHAT A MAN
9 reels. Reginald Denny. In a series of difficult situations with comedy relief. Rental $4.00 B.

WHAT BECOMES OF THE CHILDREN
7 reels. Robert Fraser, Natalie Morehead and Claudia Dell in an excellent problem story dealing with the question as to what becomes of the children of divorcees. Rental $12.50. In Series $10.00 N.

WHAT PRICE CRIME
6 reels. Charles Starrett, Virginia Cherrill. A Federal agent thriller. Rental $6.00 A.

WHAT PRICE VENGEANCE
6 reels (Columbia). Lyle Talbot, Wendy Barry. He'd sell his soul for revenge, until he bought back honor. Rental $9.00. In Series $7.50 L.

(E) WHEN KNIGHTS WERE BOLD
8 reels. Jack Buchanan, Fay Wray. Laughter, romance and song in the days of chivalry. Rental $10.00. In Series $7.50 M.

(E) WHEN LIGHTNING STRIKES
6 reels. Thunderbolt, famous dog, strikes again to defend himself. Rental $10.00. In Series $7.50 M.

WHEN STRANGERS MEET
7 reels. Richard Cromwell, Arlene Judge. A cowardly lad, dominated by a tyrannical father, wins back his courage when romance inspires him. From a story by Zona Gale. Rental $10.00. In Series $7.50 M.

WHEN'S YOUR BIRTHDAY
8 reels (RKO). He tells your fortune—past, present and future. Rental $12.50. In Series $10.00 N.

WHISPERING SMITH SPEAKS
7 reels (20th Century-Fox). George O'Brien in a thrilling 100-mile race against time in a borrowed locomotive gives the exciting climax to this great railway drama. Rental $12.50. In Series $10.00 N.

WHISTLING BULLETS
6 reels. Kermit Maynard in a James Oliver Curwood story. Rental $12.50. In Series $10.00 N.

WHITE IVORY
6 reels. Jack Mulhall. Grim trek through swamps and desert. Rental $6.00 A.

WHITE LEGION
8 reels (Grand National). Tala Birell, Ian Keith. Five scientists match their knowledge and courage against the dread yellow fever germs in a Panama Canal background. Rental $10.00. In Series $7.50 M.

WHITE ZOMBIE
8 reels (United Artists). Bela Lugosi. A fiend places a woman under the strange spell of the White Zombie. Rental $12.50. In Series $10.00 N.

WIDE OPEN FACES
8 reels. He laughingly portrays a small town "soda-jerker." Rental $15.00. In Series $12.50 K.

(E) WILD BRYAN KENT
7 reels (20th Century-Fox). Ralph Bellamy. Mae Clarke, Helen Lowell in Harold Bell Wright's story of the playboy who, although branded yellow showed his mettle in a wild cross-country horse race and a roaring prairie fire. Rental $12.50. In Series $10.00 N.

(E) WILDCAT TROOPER
6 reels. James Oliver Curwood drama with Kermit Maynard. Rental $12.50. In Series $10.00 N.

(E) WILDERNESS MAIL
6 reels. Kermit Maynard in a James Oliver Curwood story. Rental $7.50. In Series $6.00 C.

(E) WILD HORSE ROUNDUP
6 reels. Kermit Maynard in a zippy Curwood drama. Rental $12.50. In Series $10.00 N.

(E) WILD INNOCENCE
6 reels. The story of "Chut" baby kangaroo of Australia. An appealing story. Rental $10.00. In Series $7.50 M.

(E) WILLIAM TELL
7 reels. A Swiss-made film, with Conrad Veidt, depicting a free people's struggle against the Austrian yoke. Rental $9.00. In Series $7.50 L.

(E) WINDJAMMER
7 reels (RKO). George O'Brien and Constance Worth. Captured by gun-runners, adrift at sea, terrific excitement every minute. Rental $15.00. In Series $12.50 K.

WINGS OF ADVENTURE
6 reels. Rex Lease and Armida, Clyde Cook, in an aviation story south of the border, in which the hero finds himself mixed up in a revolution. Rental $9.00. In Series $7.50 L.

WINTER CARNIVAL
9 reels. Ann Sheridan, Richard Carlson, Helen Parrish, Robert Armstrong. What happens when 1500 College Girls "hit the Campus"? Dartmouth's dizzy, the campus is crazy, the world's topsy-turvy with merriment as youth rides high on the crest of romance, in one big grand and glorious snow frolic. Rental $17.50. In Series $15.00 R.

WITH LOVE AND KISSES
7 reels. Pinky Tomlin, Toby Wing, Kane Richmond and "Minnie, the Cow." Minnie gives milk, her owner gives music and set the listening radio world on its ear. Rental $9.00. In Series $7.50 L.

WITHOUT CHILDREN
7 reels. Margaret Churchill, Bruce Cabot, Evelyn Brent, Reginald Denny. It tells a dramatic story of marriage, divorce and today's children, with plenty of comedy to lighten the more serious scenes. Rental $10.00. In Series $7.50 M.

(E) WITH WORDS AND MUSIC

7 reels (Grand National). Irene Hervey and Robert Armstrong. At last Gilbert and Sullivan come to the screen, and their famous songs live again. Rental $15.00. In Series $12.50 K.

(E) WOLF CALL

6 reels (Monogram). Movita, with Polly Anne Young and Peter George Linn. Jack London story, against a magnificent background of mighty mountains and lakes. Rental $12.50. In Series $10.00 N.

(E) WOLVES OF THE SEA

7 reels. Hobart Bosworth and Jean Carmen. Mutiny on a hellship and adventures in the tropics. Rental $12.50. In Series $10.00 N.

WOMAN UNAFRAID

7 reels. Lucille Gleason, Skeets Gallagher, Barbara Weeks. The exciting experiences of a policewoman. Rental $7.50. In Series $6.00 C.

WOMAN WHO DARED

7 reels. Claudia Dell, Lola Lane. Story of heroism. Rental $4.00 B.

WOMEN IN WHITE

7 reels. Moving story of a young doctor, willing to sacrifice his career for the sake of humanity. Rental $4.00 B.

WORLD ACCUSES (The)

6 reels. Vivian Tobin, Dickey Moore, Cora Sue Collins in the story of a child who was the innocent pawn in a battle between the unscrupulous family of his dead father, and his modern life-loving mother, who was deprived of her child through the damning evidence of servants' gossip. Rental $10.00. In Series $7.50 M.

(E) WORLD AT WAR (The)

5 reels—running time 45 minutes. This is a pictorial record of a decade of war that led to the attack on Pearl Harbor and the Western hemisphere. Every scene is authentic, the material of which was taken not only from American newsreels but from many of the films that were captured. Rental $5.00.

(E) YANK IN LIBYA

7 reels. Walter King, Joan Woodbury, H. B. Warner, Parkyakarkus. She made love to a sheik and held him loyal to the Allied cause! An American go-getter and a gorgeous English girl stake their lives to foil the Nazis . . . while the British garrison waited for the onrush of the wild Arab hordes! Rental $12.50. In Series $10.00 PR.

THE YANKS ARE COMING

Henry King and His Orchestra, Mary Healy, Little Jackie Heller, Slapsie Maxie Rosenbloom, Dorothy Dare, William Roberts and Parkyakarkus! Something to CHEER about! You'll SING to it! You'll SWING to it! Introducing FIVE SMASH SONG HITS: "The Yanks Are Coming", "I must Have Priorities on Your Love", "There Be No Blackout of Democracy", and "Zip You Lip". Rental $12.50. In Series $10.00 PR.

YELLOW CARGO

6 reels (Grand National). United States immigration inspector and a girl reporter expose a gang of smugglers. Rental $7.50. In Series $6.00 C.

YOU ONLY LIVE ONCE

9 reels (United Artists). Henry Fonda, Sylvia Sidney and Barton MacLane. The sensational story of a "framed" man for whom love and danger combine to make a thrilling movie. Rental $17.50. In Series $15.00 R.

YOU'RE OUT OF LUCK

6 reels (Monogram). Frankie Darro, Kay Sutton. He's only a fresh "elevator jockey" to the police, but he helps them to blast a gambling ring. Rental $15.00. In Series $12.50 K.

YOUNG AND BEAUTIFUL

8 reels. William Haines, Judith Allen, Joseph Cawthorne, Ted Fio Rito and his Orchestra, Shaw and Lee, the Wampas Baby Stars, in a picture packed with Fun, Music and Romance. Rental $9.00. In Series $7.50 L.

YOUNG DYNAMITE

6 reels. Starring Frankie Darro and Kane Richmond. A Peter B. Kyne story, revealing the course of training of the State Police School, and how the Secret Service, with State Troopers, safeguard the American public. Rental $9.00. In Series $7.50 L.

YOUNG IN HEART (The)

9 reels. Janet Gaynor, Douglas Fairbanks, Jr., Paulette Goddard, Billie Burke, Roland Young. Here comes the Carlton family—streamlined Ali Babas—exuding charm and a touch of larceny with every fortune-hunting smile. Happy-go-lucky, this charming family brought laughs and sunshine everywhere they went. Rental $17.50. In Series $15.00 R.

YOUTH'S HIGHWAY

6 reels. John Ince, Helen Foster. Human interest drama of thoughtless youth. Rental $6.00 A.

ZAMBOANGA

8 reels. A tale of the Moro sea gypsies. A saga of the Sulu Sea, ablaze with thrills and romance. Filmed with a native cast. Unique, authentic, different. Packed with thrills and action, teeming with romance and beauty. Exotic native dances in vivid native pantomine. Hand-to-hand combats with weird, fierce denizens of the deep. Some English dialogue, some Philippine. A "must" picture for every audience. Rental $15.00. In Series $12.50.

ZENOBIA

(Or, An Elephant Never Forgets.) 9 reels (United Artists). Oliver Hardy, Harry Langdon, Billie Burke, Alice Brady. An unusual comedy revealing the amazing character of the elephant. Rental $17.50. In Series $15.00 HR.

ZIS BOOM BAH

7 reels. Grace Hayes, Skeets Gallagher, Benny Rubin, Mary Healy. It's a cheer-leading musical hit. The young brigade in a fun parade. The critics shout, the fans yell at this uproarious collegiate riot. Armfuls of charmful CO-EDS. Campus loads of swing-champs. A story that's fresher than a freshman. (LT.) Rental $15.00. In Series $12.50 K.

ALL-NEGRO CAST FEATURES

TWO-GUN MAN FROM HARLEM

6 reels. An all-star Negro cast in the story of a fake deacon who became a real two-gun man. Rental $15.00, including shorts. In Series $12.50.

HARLEM AFTER MIDNIGHT

6 reels. Jazz bands and a bevy of creole dancing beauties from the great nights clubs of New York. The big cast includes Lorenzo Tucker, "Slick" Chester, Pearl McCormick, Base Turner's "Royal Arcadians" Orchestra, Harlem's "Tigerette' Chorus in a melodrama with music. Rental $15.00. In Series $12.50.

MYSTERY IN SWING

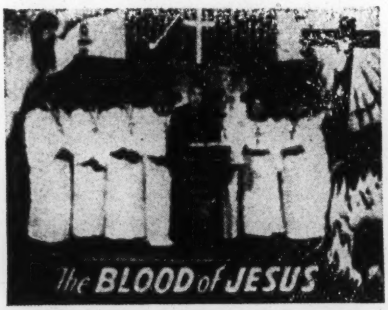
7 reels. Action, drama, and high comedy, solves one of Hollywood's most baffling murder mysteries. In this ALL-NEGRO cast picture, CEE PEE JOHNSON, the King of the Tom-Toms, really goes to town. Song hits, hilarious comedy in this mystery story set to swing. Rental $15.00. In Series $12.50.

THE SPIRIT OF YOUTH

6 reels. Starring the world heavyweight champion, Joe Lewis. Really a big picture. The king of the prizefight in a throbbing story based on his own life, telling the thrills and heartbreak of an unknown's rise to fame and fortune. See "Harlem's Big Apple Dance"—really terrific. Rental $15.00. In Series $12.50.

THE BLOOD OF JESUS

6 reels. Spencer Williams, Cathryn Caviness and The Heavenly Choir of 75 voices. This is undoubtedly the most powerful All-Negro motion picture ever produced. The famous Heavenly Choir sings eleven (11) of the most popular Negro Spirituals. Rental $15.00. In Series $12.50.



HARLEM RIDES THE RANGE

6 reels. Starring Herbert Jeffrey and his horse, Stardusk. A musical western feature with an all-Negro cast, starring Herbert Jeffrey, the sensational colored singing cowboy. Rental $15.00. In Series $12.50.

BRONZE BUCKAROO

6 reels. Starring Herbert Jeffrey and the Four Tones. Another musical western with all-colored cast starring Herbert Jeffrey, the happy cowboy. Rental $15.00. In Series $12.50.

SON OF INGAGI

7 reels. Starring Zack Williams and the Four Toppers. Women faint and strong men shriek when the love-starved ape-man steals the bride on her bridal night. Rental $15.00. In Series $12.50.

PARADISE IN HARLEM

7 reels. The sensational inside story of a great comedian, whose one ambition could not be denied. Starring Frank Wilson, Mamie Smith, Lucky Millinder and orchestra. Months in making, bringing you a never to be forgotten spectacle. Includes the following song hits: Harlem Blues, Harlem Serenade, Yeah Man and Swing Othello, sung by 500 mighty voices. Rental $15.00. In Series $12.50.

LOUISIANA

6 reels. Broadway play of Negro life; an absorbing story that at no point touches the white man's world. All-star Negro cast. Good and evil come to grips in Louisiana backwoods town, and the issue is decided finally when old voodoo cult leader supports the Christian preacher. (J. Augustus Smith, Laura Bowman.) Rental $12.50. In Series $10.00.

BROWN BOMBER

6 reels. Story of Joe Louis' fights. Rental $12.50. In Series $10.00.

TWO-REEL ALL NEGRO CAST SUBJECTS

THE TOPPERS TAKE A BOW

2 reels. An excellent musical short with an all-colored cast. The story of a radio musical troupe which goes to see a director. Rental $3.00.

"BOOGIE WOOGIE DREAM"

With Lena Horne, Ammons & Johnson, and Teddy Wilson and his Cafe Society Orchestra. Rental $3.00.

OCTAVUS COHEN—*Saturday Evening Post Stories*

(ALL NEGRO CASTS)

Brown Gravy

Music Hath Harms

Oft in the Silly Night

The Lady Fare

Rental $3.00 Each

ONE-REEL ALL NEGRO CAST SUBJECTS

THE BROKEN EARTH

1 reel. An excellent musical short with an all-colored cast. Rental $1.50.

FOREIGN LANGUAGE FILMS

CZECHOSLOVAKIAN

GAY HOSTESS INN

9 reels. Gayety, adventure, romance in Czechoslovakia before the invasion. Rental $17.50.

FRENCH

END OF THE DAY

105 minutes. Directed by Julien Duvivier. Cast: Victor Francen, Louis Jouvet, Michel Simon, Madeleine Ozeray. "Few films from abroad have been so wittily written or so well translated by the dialogue scribes, and few films, whether from abroad or here have so well interpreted the joys and sorrows of the stage" (N.Y. Times). Rental $19.50.

MARIA CHAPDELAINE

77 minutes. Filmed 12 miles north of Lake St. John, Quebec, Canada, under direction of Julien Duvivier. Stars Jean Gabin and Madeleine Renaud. "Maria Chapdelaine preserves the integrity of the Hemon work, with a skill that gives the film the nobility of an epic poem" (N.Y. Times). Rental $22.50.

RUNAWAYS OF ST. AGIL

90 minutes. A French detective story especially pleasing for High School boys and girls. The acting of the boys in the film is delightfully natural. It is in French what "Emil and the Detective" is in German. Rental $20.00.

L'ALIBI

Star studded cast in brilliantly-directed "L'Alibi". Drama of rare power! France's great director turns a girl's mind into a laboratory . . . pitting her every emotion against her will . . . to break down a fatal lie!

The Cast

Professor Winkler	Eric Von Stroheim
Inspector Calas	Louis Jouvet
Laurent	Albert Prejean
Helene	Jany Holt
Gordon	Philippe Richard
Dany	Margo Lion
The Blonde	Florence Marly
The Professor's Assistant	Fun-Sen
Gerard	Maurice Baquet
Kretz	Roger Blin

Bobby Martin and his Orchestra with Thelma Minor

The Staff

Story by Marcel Achard — Adaptation by J. Companeez and R. Juttke. Directed by Pierre Chenal. Music by Georges Auric and Jacques Dallin.

APPLY FOR RENTAL RATES

AMPHITRYON (88 minutes)

The mythological fable, Amphitryon, which tells of Jupiter's unhappy affair with the beauteous Alcmene, has inspired artists and poets from Aristophanes, Homer and Moliere to Alfred Lunt and Lynn Fontanne. Rental $25.00

DAYBREAK (88 minutes)

This is the last, and according to some critics, the best picture acted in France by Jean Gabin, who is perhaps best known in the United States for his acting in Maria Chapdelaine, Pepe le Moko and Grand Illusion.

The daring plot of DAYBREAK gave Marcel Carne, a brilliant new director, the opportunity of showing uncanny skill in the use of the cinematic medium of telling a story. Rental $25.00.

HARVEST (83 minutes)

Directed and produced by Marcel Pagnol from Jean Giono's novel "Regain." Only one man is left in a mountain town of Provence when Gaubert, the old plow-maker, leaves to join his children in the town. The film tells the story of this one man and his wife, how they borrowed a plow and seed, and raised bread. Rental $17.50.

THE DEVIL IS AN EMPRESS (80 minutes)

Released in France under the title "Le Joueur d'Echecs." From the "The Chess Player of Vilna" by H. Dupuy-Mazuel. Released for the first time in 16mm during the season of 1941-1942. The unusually capable cast includes Francoise Rossy as Catherine the Great and Conrad Veidt as Baron Kempelen, the maker of human-acting automatons. The story is one of intrigue and diplomatic tug of war in the hectic days of Catherine II. Rental $25.00.

"ABUSED CONFIDENCE"

Starring Danielle Darrieux with Charles Vanel. Directed by Henry Decoin. France's greatest actress in her first dramatic role since "Mayerling", a searching study of a young girl's life acted with an intensity that surpasses her greatest triumphs! First prize winner, Paris Exposition. (World-wide success assured!—L'Intransigeant); (one of the best French pictures—L'Oeuvre); (Darrieux is miraculous . . . a temperament like thunder!—Le Canard Enchaine); (Our brightest star!—Le Jour); (Irresistible emotion!—Paris-Soir).

RENTAL RATE ON APPLICATION

CARNIVAL IN FLANDERS

9 reels. French dialogue with English titles. Humorous story of 1616, showing how the women dealt with the Spanish soldiers. Rental $20.00.

HEART OF PARIS

9 reels. Raimu. The amusing story of a man whose heart runs away with his head. Rental $25.00.

PEARLS OF THE CROWN

6 reels. Sacha Guitry made this film which covers five centuries of France and England from 1500 A. D. English, French, Italian and Abyssian are spoken. Explanatory titles in English. Rental $10.00.

THE END OF A DAY

10 reels. Victor Francen, Louis Jouvet. In a home for retired actors, a group of men and women revive past triumphs and youthful successes. Rental $25.00.

THE VOLGA BOATMAN

8 reels. French dialogue with English titles. Pierre Blanchar and Vera Korene. From a Volga boatman crew he rescues the lady he loves, from drowning. Plenty of action. Rental $20.00.

ESCAPE FROM YESTERDAY

10 reels. Annabella and Gene Gabin. Thrilling Foreign Legion drama. Rental $20.00.

MARSEILLAISE

8 reels. French dialogue with English titles. Fascinating story of the French revolution. Rental $19.50.

BIZARRE BIZARRE

8 reels. Louis Jouvet, Francois Rosasy. A madcap farce in which the French poke fun at their English cousins and the customs of the late '90's. Rental $17.50.

THEY WERE FIVE

8 reels. Gene Gabin, Charles Vanel. The story concerns the winning of a lottery, to start life anew for five down-and-out people. Rental $17.50.

GRAND ILLUSION

10 reels. French dialogue with English titles. Tense drama depicting the life of some French army officers in a German prison camp. Rental $17.50.

FRENCH 1-REEL SUBJECTS

Rental $1.50 Each

See No. 4.
See No. 5.
See No. 6.
Sahara.
Hawaii.
Let's Go to the Zoo.
Solace of the Hills.
Flying Feet (Birds).
Dog Show
Camera Thrills in Wildest Africa.
Coronation of Pope Pius XII.
Rome.
Visit of King George and Queen Elizabeth.
Let's Go Fishing.
A Lonely Soul.
Silvery Salmon.

OTHER FRENCH SHORTS

PARIS (4 minutes)	$2.50
LE VIEUX CHATEAU (4 minutes)	2.50
LES [illegible] DE LA GARDE (4 minutes)	2.50
LA CHAMPAGNE (22 minutes)	5.00

GERMAN

CONCERT IN TYROL

(Symphony of the Mountains)—10 reels. The famous Vienna Boys Choir, on Skis, and on the concert stage. Rental $20.00.

AN ORPHAN BOY OF VIENNA

8 reels (with English titles). Viennese musical masterpiece, featuring the Vienna Boys Choir, accompanied by the Vienna Philharmonic Orchestra. Rental $17.50.

THE CHARM OF LA BOHEME

12 reels. Puccini's famous opera, starring Jan Kiepura with Marta Eggerth and the Vienna Philharmonic Orchestra. Magic Song and Immortal Love. Rental $17.50.

COBBLER CAPTAIN OF KOEPENEK

6-reel version, with English titles. Comedy drama. Rental, 8-reel version, $18.00.

MAKING OF A KING (The)

10 reels. Emil Jannings. An absorbing historical picture showing the making of Frederick the Great. Rental $15.00.

EMIL UND DIE DETEKTIVE

8 reels. Faithful film version ow the story. Rental $15.00.

ITALIAN

OTHELLO

8 reels. Verdi's opera, based on Shakespeare's drama. Rental $15.00.

1-REEL ITALIAN MUSICALS

Rental $1.50 Each

Dolls' Fantasy ***Venetian Nights***

Impressions of Naples, Sorrento and Capri

ORIENTAL LANGUAGES

THE ETERNAL QUEST

8 reels. Japanese dialogue, with English subtitles. KNOW YOUR ENEMY. This film depicts what the Japanese consider to be their civilization, and shows the modern life of the Japanese people. Rental $18.00.

SONG OF CHINA

6 reels (with English titles). Produced in China, by an all-Chinese cast, with plenty of native music in the background. Rental $12.00.

POLISH

YOUNG FOREST

9 reels. The story of the uprising of the young polish students, in that part of Poland that was under the Czarist rule from 1885 to 1900. Rental $17.50.

SPANISH

TERMINA SIEMPRE ASI (It All Ends Well)

8 reels. A musical comedy, with plenty of songs and dances, rich in costume and appropriate setting. Rental $15.00.

ROSARIO LA CORTIJERA (Hearts Aflame)

9 reels. A musical drama of a great Hacienda, where the best bulls for the famous rings of Spain were bred. Rental $15.00.

DERORADO FOR LOS COCODRHOS

4 reels. Rental $7.50.

DOS NOCHES

7 reels. Rental $15.00.

UNA ADVENTURA PELIGROSA (A Dangerous Adventure)

9 reels. In spit of dangerous adventures, the father secured for his son an opportunity to sing and dance in the National Theatre of Cuba. Rental $15.00.

MOLINOS DE VIENTO (Song of the Windmills)

9 reels. Charming Spanish operetta, with the land of tulips and windmills as background. Rental $15.00.

LAS 5 ADVERTENCIAS DE SATANAS (Five Warnings of Satan)

10 reels. A comedy and mystery story, based on appearance of His Satanic Majesty. Rental $15.00.

LA LLORONA

8 reels. Mystery story based on well-known Spanish legend of Colonial times. Rental $16.00.

LA ISLA MALDITA (The Enchanted Isle)

8 reels. Rousing action of a group of adventurers on a deserted island. Rental $14.00.

EL HEROE DE NACOZARI (Hero of Nacozari)

8 reels. A railroad drama full of suspense and exciting adventure. Rental $14.00.

JALISCO NUNCA PIERDE (Julisco Never Fails)

10 reels. Music, songs, dances, beautiful scenery and typical life of a small Mexican town. Rental $20.00.

LOS MILLONES DE CHAFLAN (Chaflan's Millions)

10 reels. Carlos Lopez in an amusing farce about the adventures of a farmer who unexpectedly gets rich. Rental $20.00.

DOS MUJERES Y UN DON JUAN (Two Women)

8 reels. Fine muscial film produced in Spain. Rental $15.00.

LA ZANDUNGA

12 reels. Lupe Velez. Comedy and musical film, with an occasional touch of serious interest. Rental $20.00.

UNA LUZ EN MI CAMINO (A Light in My Path)

10 reels. Story of a blind musician who attained success through the love of a girl. Rental $16.00.

BEYOND BENGAL

7 reels. Adventure film of the Malaya Peninsula. Rental $15.00.

ADVENTURES OF CHICO

6 reels. Story of a Mexican boy who lived close to nature. Rental $15.00.

OJOS TAPTIOS

8 reels. A singing film portraying the life of the people of Central Mexico. Rental $15.00.

HUAPANGO

12 reels. Music, songs, fiestas and customs of the beautiful State of Vera Cruz. Rental $20.00.

BUENOS DIAS, CARMELITA

2 reels. An exercise in intermediate Spanish, designed to stir desire to use the Spanish language, and to stimulate its study. Rental $3.00 (including the use of Teacher's Guide and one copy of preparatory lesson).

SHORT SUBJECTS IN SPANISH

Cosacos de Acero (Motorcycle Stunts).
Simao da Veiga (noted Portuguese bullfighter on horseback).
La Serenada de Jalisco (typical Mexican songs).
Feria de Guadalajara (songs and music of this Fair).
Dias de Fiesta (Lupe Velez in typical Mexican songs).
Canciones Veracruzanas (beautiful Mexican songs).
Huapanguero (Spanish songs and dances).
Sonatas de Orizaba (typical music of Vera Cruz).
Manila Moderna (Philippines).
Lindo Baguio (Philippines).
Gente de Luzon (city people and savage tribes of the Philippines).
Campesinos Filipinos (Rural Folks of the Philippines).
Camera Thrills in Wildest Africa.
Dog Show.
Coronation of Pope Pius XII
Vamosnos A Pescar
El Alma Solitaria.
El Solaz en Las Colinas
Salmon Plateado.
La Flota Volante.
Tiger Hunting in Bengal.
Let's Go Fishing.
Flying Feet.

Apply for Rentals

YIDDISH

JOSEPH IN THE LAND OF EGYPT

8 reels. A spectacular, all-talking Jewish picture, dealing with this Biblical episode. Rental $15.00.

SACRIFICE OF ISAAC

9 reels. Exceptionally fine presentation of the Old Testament story of the Abraham period. Rental $15.00.

DREAM OF MY PEOPLE

7 reels. An interesting Holy Land picture, benefitted by the inspirational singing of the late lamented, ever-reverenced Cantor Joseph Rosenblatt. Rental $15.00.

WESTERN FEATURES

ART DAVIS MUSICAL WESTERNS

SIX REELS EACH

Raiders of the West.
Tumbleweed Trail
Texas Man Hunt.
Rolling Down the Great Divide.
Prairie Pals.
Along the Sundown Trail.

Rental $10.00. In Series $7.50 M

BILLY THE KID SERIES

Buster Crabbe and Al St. John

Mysterious Rider
The Kid Rides Again
Fugitives of the Plains
Western Cyclone
Renegade
Billy the Kid No. 6
Billy the Kid Wanted
Billy the Kid's Round-up
Billy the Kid in Smoking Guns
Billy the Kid Trapped
Billy the Kid in Law and Order
Billy the Kid in Sheriff of Sage Valley

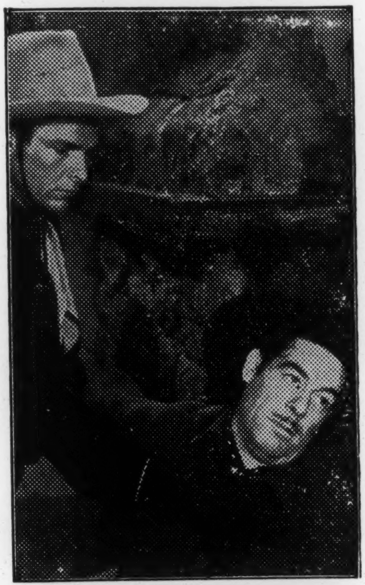
Rental $10.00. In Series $7.50 M

BILLY THE KID SERIES

(Starring BOB STEEL)
SIX REELS EACH

Billy the Kid's Trigger Men
Billy the Kid Trails West
Billy the Kid's Range Justice
Billy the Kid in Texas Trouble
Billy the Kid in Battling Outlaw
Billy the Kid Outlawed

Complete Programs $10.00. In Series $7.50 M



BILL CODY WESTERNS

Blazing Justice
Cyclone Ranger
Frontier Days
Lawless Border
Outlaws of the Range
Six-Gun Justice
Texas Rambler
Vanishing Riders
Border Guns
Western Racketeer
Border Menace

Program $7.50. In Series $6.00 C.

BIG BOY WILLIAMS WESTERNS

SIX REELS EACH

Lucky Boots.
Gun Play.
Danger Trails.
Big Boy Rides Again.
The Law of the 45's.
Thunder Over Texas.

Program $10.00. In Series $7.50 M.

BOB CUSTER WESTERNS

SIX REELS EACH

Quick Trigger Lee.
Law of the Rio Grande.
Riders of the North.
Son of the Plains.

Program $7.50. In Series $6.00 C.

BOB STEELE WESTERNS

SIX REELS EACH

Riders of the Sage.
Smoky Trails.
Wild Horse Valley.
Pinto Canyon.
Feud of the Range.
The Pal From Texas.
Mesquite Buckaroo.
El Diablo Rides.
Fighting Champ.
Galloping Romeo.
Young Blood.
Tombstone Terror.
Western Justice.
Big Calibre.
Demon for Trouble.
Brand of Hate.
Kid Courageous.
Riders of the Law.
Sundown Saunders.
Man From Hell's Edges.
Texas Buddies.
Range Justice.
Law of the West.
Son of Oklahoma.
Breed of the Border.
Hidden Valley.
Headin' North.
Land of Missing Men.
Near Rainbow's End.
Near Trail's End.
South of Santa Fe.
Riders of the Desert.
Ridin' Fool.
Smokey Smith.
Trail of Terror.
Brand of the Outlaw.
The Law Rides.
The Last of the Warrens.
No Man's Range.
Alias John Law.
The Kid Ranger.

Complete Programs $10.00. In Series $7.50 M.

"BLACK KING" WESTERNS

SIX REELS EACH

Judgment Book.
Gunners and Guns.
Riddle Ranch

Program $10.00. In Series $7.50 M.

BUZZY HENRY WESTERNS

The Biggest Little Star in Pictures

Buzzy and the Phantom Pinto. 6 reels.
Buzzy Rides the Range. 6 reels.

Complete Programs $10.00. In Series $7.50 L.

BUDDY ROOSEVELT WESTERNS

FIVE REELS EACH

Lightning Range
Range Riders.

Program $7.50. In Series $6.00 C.

BUFFALO BILL JR. WESTERNS

FIVE REELS EACH

Ridin' Speed.
Westward Bound.

Program $7.50. In Series $6.00 C.

BOBBY CLARK WESTERNS

6 reels. 13-Year World's Champion Junior Cowboy.

The Sage Family Trails West

Program $10.00. In Series $7.50 M.

CONWAY TEARLE WESTERNS

SIX REELS EACH

Trail's End.
Senor Jim.
Desert Gun.

Program $7.50. In Series $6.00 C.

FOREIGN LANGUAGE FILMS

DOROTHY PAGE MUSICAL WESTERNS

SIX REELS EACH

The singing Cowgirl.
Ride 'Em Cowgirl.
Water Rustlers.

Program $10.00. In Series $7.50 M.

FRED SCOTT MUSICAL WESTERNS

(Assisted by Comedian Al St. John)

SIX REELS EACH

The Code of the Fearless.
In Old Montana.
Two Gun Troubador.
Melody of the Plains.
Romance Rides the Range.
The Fighting Deputy.
Moonlight on the Range.
The Singing Buckaroo.
The Roaming Cowboy.
Rangers Round-Up.
Songs and Bullets.
Knight of the Plains.
Ridin' the Trail.

Programs $10.00. In Series $7.50 M.

GEORGE HOUSTON WESTERNS

with "FUZZY"

SIX REELS EACH

Frontier Scout
Lone Rider in Across the Border
Lone Rider in Riders of the Plains
Lone Rider in Ghost Mine
Lone Rider in Rangeland Racket
Lone Rider in Trapped in the Badlands
Lone Rider in Lawless Town
Lone Rider and the Bandit
Lone Rider in Cheyenne
Lone Rider's Border Roundup
Lone Rider's Texas Justice
Lone Rider in Outlaws of Boulder Pass

Rental $12.50. In Series $10.00 N.

HOOT GIBSON WESTERNS

Local Bad Man—7 reels.
Boiling Point—7 reels.
Clearing the Range—6 reels.
Hard Ombre—6 reels.
Frontier Justice—6 reels.
Feud of the West—6 reels.
Riding Avenger—6 Reels.
Swifty—6 reels.
Lucky Terror—6 reels.
The Dude Bandit—6 reels.
The Cowboy Counsellor—6 reels.
The Fighting Parson—6 reels.
Gay Buckaroo—6 reels.
A Man's Land—6 reels.
Spirit of the West—6 reels.
Cavalcade of the West—6 reels—a vivid historical drama of the pony express riders of the days of '49.

Program $10.00. In Series $7.50 M.

HARRY CAREY WESTERNS

Cavalier of the West—7 reels.
Border Devils—6 reels.
Night Rider—6 reels.
Without Honor—6 reels.
Last of the Clintons—6 reels.
Rustlers Paradise—6 reels.
Wild Mustang—6 reels.
Wagon Trails—6 reels.

Program $10.00. In Series $7.50 M.

EXTRA SPECIAL

HOP ALONG CASSIDY SERIES

Starring William Boyd

(Released Theatrically by Paramount)

SEVEN REELS EACH

Subjects

Hop Along Cassidy
Call of the Prairie
The Eagle's Brood
Three on the Trail
Bar 20 Rides Again
Heart of the West

Rental, with shorts $12.50. In Series $10.00 N.

JACK RANDALL WESTERNS

SIX REELS EACH

Covered Wagon Trails (M).
Land of the Six Guns (M).
Kid from Santa Fe (M).
Riders From Nowhere (M).
Wild Horse Range (M).
Trigger Smith (M).
Across the Plains (M).
Oklahoma Terror (M).
Overland Mail (M).
Pioneer Days (M).
Cheyenne Kid (M).
Gun Smoke Trail
Land of Fighting Men.
Mexicali Kid.
Man's Country.
Danger Valley (M).
Riders of the Dawn (M).
Stars Over Arizona (M). 7 reels.
Where the West Begins (M).
Drifting Westward (M).
Gun Packer (M).
Wild Horse Canyon (M).
Gold.

Rental $12.50. In Series $10.00 N.

JACK PERRIN WESTERNS

Phantom of the Desert—6 reels.

Program $7.50. In Series $6.00 C.

JOHNNIE MACK BROWN WESTERNS

SIX REELS EACH

Branded a Coward.
Valley of the Lawless.
Rogue of the Range.
Everyman's Law.
Between Men.
The Desert Phantom, 7 reels.

Program $10.00. In Series $7.50 M.

JOHN WAYNE WESTERNS

SIX REELS EACH

Lawless Frontier.
'Neath Arizona Skies.
Randy Rides Alone.
West of the Divide.
Dawn Rider.
Desert Trail.
Paradise Canyon.
Rainbow Valley.
Riders of Destiny.
Sage Brush Trail.
The Star Packer.
Texas Terrors.
The Trail Beyond.
Blue Steel (7 reels).
Man From Utah.

Program $10.00. In Series $7.50 M.

JACK HOXIE WESTERNS

SIX REELS EACH

Gun Law.
Gold.
Law and the Lawless.

Program $7.50. In Series $6.00 C.

KEN MAYNARD WESTERNS

SIX REELS EACH

Lone Avenger.
Tombstone Canyon.
Whirlwind Horsemen.
Six Shootin' Sheriff.
Arizona Terror.
Two Gun Man.
Flaming Lead.
Phantom Rancher.
Lightning Strikes West.
Death Rides the Range.
In Old Santa Fe.
Boots of Destiny.
Fighting Through.
Drum Taps.
Dynamite Ranch.
Between Fighting Men.
Phantom Thunderbolt.
Come On, Tarzan.
Fargo Express
Hell Fire Austin.
Sunset Trail.
Trailin' Trouble.

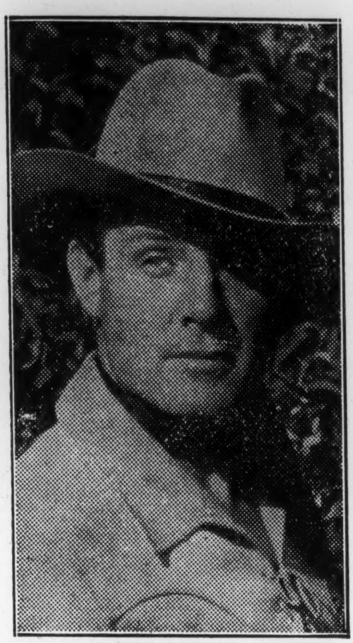
Program $10.00. In Series $7.50 M.

LONE RIDER SERIES

Bob Livingston, Smoky Moore, Al St. John

Overland Stage Coach
Wild Horse Rustlers
Death Rides the Plains
Wolves of the Range
Law of the Saddle
Raiders of Red Gap

Rental $10.00. In Series $7.50 M.



LANE CHANDLER WESTERNS

SIX REELS EACH

Guns for Hire.
Outlaw Tamer.
The Lone Bandit.
Texas Tornado.
Lawless Valley.

Program $10.00. In Series $7.50 M.

RANGE BUSTER WESTERNS

Saddle Mountain Roundup—LT.
Tonto Basin Outlaws—LT.
Underground Rustlers—LT.
Thunder River Feud—LT.
Wangler's Roost.
Fugitive Valley.
Trail of the Silver Spurs.
The Kid's Last Ride.
Rock River Renegades—LT.
Boothill Bandits—LT.
Texas Trouble Shooters—LT.
Arizona Stagecoach—LT.
Tumble Down Ranch in Arizona.
Range Busters.
Trailing Double Trouble.
West of Pinto Basin.

Program $15.00. In Series $12.50 K.

REB RUSSELL WESTERNS

SIX REELS EACH

Blazing Guns.
Outlaw Rule.
Border Vengeance.

Program $10.00. In Series $7.50 M.

REX BELL WESTERNS

SIX REELS EACH

Law and Lead.
Too Much Beef.
Tonto Kid.
Gunfire.
West of Nevada.
Idaho Kid.
Fighting Pioneers.

Program $7.50. In Series $6.00 C.

SMITH BALLEW SUPER-WESTERNS

Hawaiian Buckaroo (T)—6 reels.
Panamint's Bad Man (T)—6 reels
Roll Along Cowboy (T)—6 reels.
Rawhide (T)—6 reels.

With or Without Shorts $17.50. In Series $15.00 R.

Western Gold—7 reels.

Feature $12.50. In Series $10.00. Weekly $20.00 PR.

STARLIGHT (The Wonder Horse) SERIES

SIX REELS EACH

Wildcat Saunders.
Hair Trigger Casey.
Desert Justice.
Gun Grit.

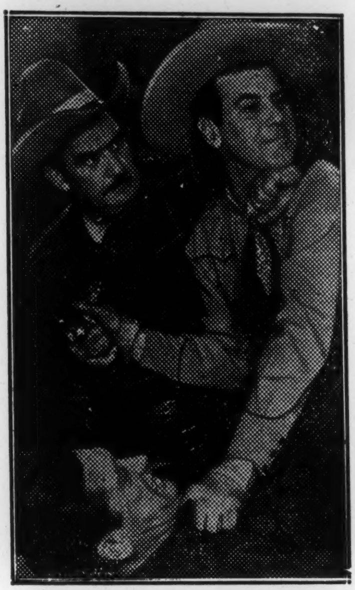
Program $10.00. In Series $7.50 M.

TEXAS RANGER SERIES

Tex O'Brien, James Newell and The Rhythm Rangers

Texas Rangers Take Over
Bad Men of Thunder Gap
West of Texas
Border Buckaroos
Fighting Valley
Trail of Terror

Rental $12.50. In Series $10.00 N.



TEX RITTER WESTERNS

SIX REELS EACH

Pals of the Silver Sage (M).
Cowboy From Sundown (M).
Arizona Frontier.
Westbound Stage (M).
Roll Wagon Roll (M).
Rollin' Home to Texas (M).
Take Me Back to Oklahoma (M).
The Golden Trail (M).
Riders of the Frontier (M).
Riding the Cherokee Trail (M).
Rhythm of the Rio Grande (M).
Down the Wyoming Trail (M).
Man From Texas (M).
Rollin' Plains.
Utah Trail.
Arizona Days (M).
Trouble in Texas (M).
Riders of the Rockies (M).
Headin' for the Rio Grande (M).
Song of the Gringo (M).
Mystery of the Hooded Horseman (M).
Hittin' the Trail (M).
Sing, Cowboy, Sing (M).
Tex Rides with the Boy Scouts (M).
Frontier Town (M).
Rainbow Over the Range.
Rollin' Westward (M).
Song of the Buckaroo (M).
Starlight Over Texas (M).
Sundown on the Prairie (M).
Where Buffalo Roam (M).
The Pioneers (M).

Complete Programs $15.00. In Series $12.50 K.

TOM KEENE WESTERN FEATURES

SIX REELS EACH

Lone Star Law Men—LT.
Western Mail—LT.
Arizona Roundup—LT.
Where Trails End—LT.
Wanderer of the West.
Dynamite Canyon.
Ridin' the Sunset Trail.
Driftin' Kid.

Program $15.00. In Series $12.50 K.

ADDITIONAL TOM KEENE WESTERNS

SIX REELS EACH

God's Country and the Man.
The Painted Trail.
Romance of the Rockies.
Where Trails Divide.

Program $10.00. In Series $7.50 M.

TOM TYLER WESTERNS

SIX REELS EACH

The Forty-Niners.
When a Man Rides Alone.
Deadwood Pass.
War on the Range.
Terror of the Plains.
Unconquered Bandit.
Born to Battle.
Silent Valley.
Tracy Rides.
Mystery Ranch.
Laramie Kid.
Rio Rattler.
Trigger Tom.
Fast Bullets.
Ridin' On.
Roamin' Wild.
Pinto Rustlers.
Brothers of the West.
Cheyenne Rides Again.
Feud of the Trail.
Ridin' Thru.
Mystery Range.
Lost Ranch.
Orphans of the Pecos.
Phantom of the Range.
Rip Roarin' Buckaroo.
Honor of the Mounted.
Man From New Mexico.
Riders of the Plains.
Single Handed Saunders.
Vanishing Men.

Program $10.00. In Series $7.50 M.

TIM McCOY WESTERNS

SIX REELS EACH

Arizona Bound—LT.
Gunman from Bodie—LT.
Forbidden Trails—LT.
Below the Border—LT.
Border Marshall.
Fighting Crusader.
Gun Trouble.
Gang Busters.
Black Mountain Stage.
Lone Star Marshal.
Straight Shooter.
Aces and Eights.
Border Caballero.
Bulldog Courage.
Lightning Bill Carson.
The Lion's Den.
Roarin' Guns.
Trigger Fingers.
Phantom Ranger.
Texas Renegade.
West of Rainbow's End.
The Traitor.
Fighting Renegade.
Lightning Carson Rides Again.
Six Gun Trail.
Outlaw's Paradise.
Code of the Cactus.
Texas Wild Cats.

Program $12.50. In Series $10.00 N.

FRONTIER MARSHALL WESTERN TORNADOS

Starring TIM McCOY

SIX REELS EACH

Fighting Crusader.
Gun Trouble.
Gang Busters.
Black Mountain Stage.
Lone Star Marshal.
Border Marshal.

Program $12.50. In Series $10.00 PR.

MISCELLANEOUS WESTERNS

Songs and Saddles—7 reels (Gene Austin).
Human Targets (Buzzy Barton).
Paradise Valley (Beverly Hill Billies)—5 reels.
Code of Honor (Mahlone Hamilton and Dorris Hill).
Lonesome Trail (Charles Delaney, Yakima Canute).
A Tenderfoot Goes West.
Gun Smoke (Buck Osborne).
Phantom Cowboy (Ted Wells).
Circle of Death (Monte Montano).

Program $7.50. In Series $6.00 C.

MISCELLANEOUS MUSICAL WESTERNS

TRIGGER PALS

Art Jarrett, Singer and Orchestra Leader.

SIX GUN RHYTHM

Tex Fletcher, Cowboy Singer.

Program $10.00. In Series $7.50 M.

THREE-REEL WESTERNS

BUD & BEN 3-REEL WESTERNS

Girl Trouble.
Potluck Pards.
Rainbow Riders.
Ridin' Gents.

Rental $3.00 Each

WALLY WALES AND "SILVER KING," THE ARABIAN HORSE, FEATURETTES

Pals of the West.
Arizona Cyclone.
The Desert Man.
Carrying the Mail.

Rental $4.50 Each

TWO-REEL WESTERNS

Starring WALLY WALES

Sundown Trail.
Lone Rider.
West of the Law.
Pals of the Prairie.

Rental $3.00 Each

SERIALS

ADVENTURES OF REX AND RINTY

25 reels. The story takes place on an imaginary island, whose strange inhabitants regard the horse as sacred and Rex as the "God Horse." The transportation of Rex to the U. S. provides the foundation for the exciting events to follow.

TITLES OF THE 12 EPISODES:

1—The God Horse of Sujan
2—Sport of Kings.
3—Fangs of Flame.
4—Homeward Bound.
5—Babes in the Woods.
6—Dead Man's Tale.
7—End of the Road.
8—A Dog's Devotion.
9—The Stranger's Recall.
10—The Siren of Death.
11—New Gods for Old.
12—Primitive Justice.

Rental $3.00 Per Episode

BURN 'EM UP BARNES

25 reels. This serial, with Frankie Darro, Jack Mulhall, Lola Lane, sets the pace for stunts and thrills. It utilizes about every modern methods of transportation on wings or wheels for its thrills.

12 CHAPTERS OF DYNAMIC ACTION:

1—King of the Dirt Tracks.
2—The News Reel Murder.
3—The Phantom Witness.
4—The Celluloid Clue.
5—The Decoy Driver.
6—The Crimson Alibi.
7—Roaring Rails.
8—The Death Crash.
9—The Man Higher Up.
10—The Missing Link.
11—Surrounded.
12—The Fatal Whisper.

Rental $3.00 Per Episode

We Apologize

After securing the exclusive rights on the four colored Selznicks, we advertised the procurability of these pictures. Unfortunately, due to shortage of raw film stock, and the shortage of manpower in the film laboratories, our prints did not arrive in time to take care of our early orders. HOWEVER, WE NOW HAVE PRINTS OF THESE ALL-COLOR PICTURES IN ALL OUR OFFICES, AND CAN FILL IMMEDIATE BOOKINGS. DON'T FORGET THE TITLES OF THE FOUR COLORED SELZNICKS:

●

★ A STAR IS BORN
★ BECKY SHARP
★ THE DANCING PIRATE
★ NOTHING SACRED

These are POSITIVELY "TOPS" in the 16mm market.
See this catalogue for descriptions

MAJOR RELEASE SERIALS
(Universal)

●

JUNIOR G-MEN OF THE AIR (12 Episodes)

Billy Halop, Gene Reynolds, Frankie Darrow
Dead End Kids, Little Tough Guys

Premised on the existence of fifth column activity in the United States prior to this country's entrance into the war, the plot deals with the intrepid collaboration of tough street kids and organized Junior G-Men in their battle against a subversive gang bent on sabotage of defense efforts.

SEE sensational flight in flames
SEE thrilling parachute jumps
SEE locomotive crash with plane
SEE oil field a roaring inferno
SEE blasting an enemy hideout
SEE mammoth dam sabotaged from air
SEE race with runaway nitro-truck
SEE air kidnappers in action
SEE chemical laboratory blown up
SEE Governor honors young heroes

CHAPTER TITLES

1. "WINGS AFLAME"
2. "THE PLUNGE OF PERIL"
3. "HIDDEN DANGER"
4. "THE TUNNEL OF TERROR"
5. "THE BLACK DRAGON STRIKES"
6. "FLAMING HAVOC"
7. "THE DEATH MIST"
8. "SATAN FIRES THE FUSE"
9. "SATANIC SABOTAGE"
10. "TRAPPED IN A BLAZING 'CHUTE"
11. "UNDECLARED WAR"
12. "CIVILIAN COURAGE CONQUERS"

Rental $3.00 per Episode

OVERLAND MAIL (15 Episodes)

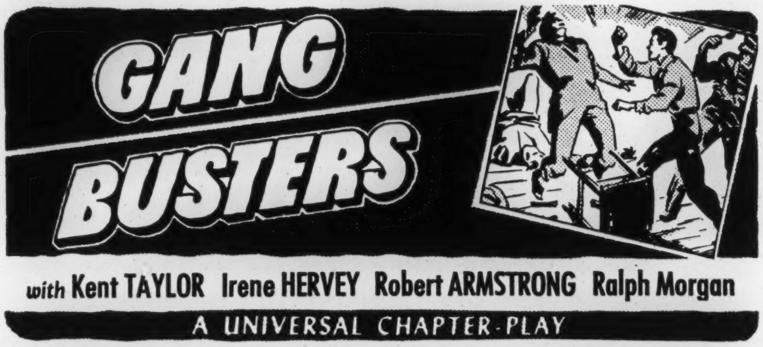
Lon Chaney, Helen Parrish, Don Terry
Noah Beery, Jr.

Film discloses the attempt of an organized gang to take over the mail franchise of the Overland Stage Company, through savage attacks on stagecoaches and pony express riders, in which bands of Indians take part. Cattle stampedes, gun fights, explosions, Indian torture, fires and other thrilling events highlight the action.

THE CHAPTER TITLES

1. "A RACE WITH DISASTER"
2. "FLAMING HAVOC"
3. "THE MENACING HERD"
4. "THE BRIDGE OF DISASTER"
5. "HURLED TO THE DEPTHS"
6. "DEATH AT THE STAKE"
7. "THE PATH OF PERIL"
8. "IMPRISONED IN FLAMES"
9. "HIDDEN DANGER"
10. "BLAZING WAGONS"
11. "THE TRAIL OF TERROR"
12. "IN THE CLAWS OF THE COUGAR"
13. "THE FRENZIED MOB"
14. "THE TOLL OF TREACHERY"
15. "THE MAIL GOES THROUGH"

Rental, $3.00 per episode


GANG BUSTERS
with Kent TAYLOR Irene HERVEY Robert ARMSTRONG Ralph Morgan
A UNIVERSAL CHAPTER-PLAY

Based on the Famous Radio Program by Phillips H. Lord

GANG BUSTERS (13 Episodes)

Kent Taylor, Irene Hervey,
Robert Armstrong, Ralph Morgan.

Sabotage and treachery as vicious as that practiced by the Axis powers is the keynote of this exciting serial which concerns itself principally with the stamping out of violence and lawlessness.

CHAPTER TITLES

1. "THE LEAGUE OF MURDERED MEN"
2. "THE DEATH PLUNGE"
3. "MURDER BLOCKADE"
4. "HANGMAN'S NOOSE"
5. "MAN UNDER COVER"
6. "UNDER CRUMBLING WALLS"
7. "THE WATER TRAP"
8. "MURDER BY PROXY"
9. "GANG BAIT"
10. "MOB VENGEANCE"
11. "WANTED AT HEADQUARTERS"
12. "THE LONG CHANCE"
13. "LAW AND ORDER"

Rental, $3.00 per episode

ANNOUNCEMENT EXTRAORDINARY!!!

The Best of Major Product Without the Necessity of Approval of Locations

We are proud to announce that we will release the following five
SUPER SPECIAL MAJOR PRODUCTIONS,
during this Fall and early Winter:

●

"AS YOU LIKE IT" — starring Lawrence Olivier and Elizabeth Bergner
"DUKE OF WEST POINT" — starring Joan Fontaine and Richard Carlson
"KING OF THE TURF" — starring Adolph Menjou and Dolores Costello
"INTERNATIONAL LADY" — starring George Brent and Ilona Massey
"SOUTH OF PANGO PANGO" — starring Victor MacLaglen, Jon Hall

NEW FEATURETTES

"SAGE BRUSH INTERLUDES"—

3 reels. We recommend this featurette for every type of audience. It is clean in every respect, and full of action. It contains one of the best "Rodeos" ever seen on the screen. The children will go wild about it—the adults will enjoy it fully. Rental, $5.00.

"MERCHANT SEAMEN"—

2 reels. A screen epic showing the heroic sacrifices of these unsung heroes of the sea. Rental, $3.00.

"KRAKATOA"

2 reels. Deals with volcanoes in a manner to make the spine tingle. Rental, $5.00.

"THE MAKING OF A STAR"

4 reels. Danny Kaye, noted comedian. Rental, $7.50.

"THE NAVIGATOR"

2 reels. Tiptop Marionette featurette. Rental, $3.00.

NEW EDUCATIONAL SUBJECTS
1 Reel Each

"LIFE OF THE ANT" "LIVING FLOWERS"
"A FISH IS BORN"

Rental $1.50

NEW ONE-REEL SAFETY FILM

"FOUR THOUSAND YEARS of EXPERIENCE"

Rental $1.50 Each

ALL-NEGRO CAST SUBJECTS
Features

"MIDNIGHT SHADOW"
"DARK MANHATTAN"
"DOUBLE DEAL"
"BROKEN STRINGS"
"SWING"
"SUNDAY SINNERS"
"MURDER ON LENOX AVENUE"
"SCANDAL" (3 big BANDS)

Rental With Shorts $15.00. In Series $12.50

2-Reel ALL-NEGRO CAST SUBJECTS

"MISSISSIPPI MOODS"
"THAT MAN SAMSON"
"DEEP SOUTH"
"CAMP MEETIN' "

Rental, $3.00 each

SPECIAL FOR CHURCHES AND CHAPLAINS

18 "Hymnalogues" *in* 16MM *Color!*

Gloriously sung by the famous HAMILTON QUARTET!

Dedicated to folks who love to sing, these three minute classics have tremendous appeal in churches, army camps, schools and everywhere people get together. The color camera has captured all of Nature's glorious scenic backgrounds, from the beautiful Yosemite to the great American desert.

THE TITLES:

"Abide With Me"
"Onward, Christian Soldiers"
"God Be With You 'Til We Meet Again"
"End Of A Perfect Day"
"Sweet Bye and Bye"
"Lead, Kindly Light"
"Yield Not To Temptation"
"The Angelus"
"Sweet Hour Of Prayer"
"Nearer, My God, To Thee"
"Rock Of Ages"
"Tell Me The Old, Old Story"

"Little Church In The Wildwood"
"He Leadeth Me"
"My Faith Looks Up To Thee"

"Ave Maria"
"The Lord Is My Shepherd"
"All Hail The Power of Jesus' Name"

Rental, $1.50 each. Purchase price, $20.00 each

SONGS FOR COMMUNITY SINGING

The following are now in production.

BE THE FIRST TO GET THEM IN YOUR COMMUNITY

"The Old Oaken Bucket"
"Home, Sweet Home"
"Auld Lang Syne"
"Comin' Thru The Rye"
"Darlin' Nellie Gray"
"Annie Laurie"
"In The Gloamin' "
"Love's Old Sweet Song"
"My Old Kentucky Home"
"Way Down Upon The Swanee River"
"Old Folks At Home"

"Home on The Range"
"Clementine"
"The Last Rose Of Summer"
"Long, Long Ago"
"The Man On The Flying Trapeze"
"Bury Me Not On The Lone Prairie"
"Oh, Suzanah"
"Red River Valley"
"Silver Threads Among The Gold"
"When You and I Were Young, Maggie"
"Columbia, The Gem Of The Ocean"
"The Old Grey Mare"

THE BLACK COIN

Fifteen Adventure-Filled Chapters. Three reels—1st episode. Two reels—each subsequent episode. Cast: Ralph Graves, Dave O'Brien, Ruth Mix, Constance Bergen. Stunts you've never seen before . . . stunts you'll never see again . . . performed with incredible skill by that master stuntsman, Yakima Canute.

THE FIFTEEN ENTHRALLING EPISODES:

1—Dangerous Men.
2—The Mystery Ship.
3—The Fatal Plunge.
4—Monsters of the Deep.
5—Wolves of the Night.
6—Shark's Fang.
7—Midnight Menace.
8—Flames of Death.
9—Smuggler's Lair.
10—Flaming Guns.
11—Wheels of Death.
12—The Crash.
13—Danger Ahead.
14—Hidden Peril.
15—The Phantom Treasure.

Rental $3.00 Per Episode

BLAKE OF SCOTLAND YARD

Fifteen smashing 2-reel episodes. Starring Ralph Byrd, assisted by Herbert Rawlinson, Joan Barclay, Lloyd Hughes, Dickie Jones, Nick Stuart.

EPISODE TITLES:

1—The Mystery of the Blooming Gardenia.
2—Death in the Laboratory.
3—Cleared Mysteries.
4—The Mystery of the Silver Fox.
5—Death in the River.
6—The Criminal Shadow.
7—Face to Face.
8—The Fatal Trap.
9—Parisian House Tops.
10—Battle Royal.
11—The Burning Fuse.
12—The Roofs of Lime House.
13—The Sting of the Scorpion.
14—The Scorpion Unmasked.
15—The Trap is Sprung.

Rental $3.00 Per Episode

THE CLUTCHING HAND

15 smashing episodes. 3 reels in the first episode, 2 reels in each of the others. A Craig Kennedy story from a novel by Arthur B. Reeves. Terrifying stunts by the screen's greatest stunster, Yakima Canute, the death-defying dare-devil of the studios.

TITLES OF THE EPISODES:

1—Who Is the Clutching Hand?
2—Shadow.
3—House of Mystery.
4—The Phantom Car.
5—The Double Trap.
6—Steps of Doom.
7—The Invisible Enemy.
8—A Cry in the Night.
9—Evil Eyes.
10—A Desperate Chance.
11—The Ship of Peril.
12—Hidden Danger.
13—The Mystic Menace.
14—The Silent Spectre.
15—The Lone Hand.

Rental $3.00 Per Episode

CUSTER'S LAST STAND

Fifteen wonderful episodes. First episode is in 5 reels and the balance in 2 reels each. The cast is excellent, including such stars as Rex Lease, William Farnum, Dorothy Gulliver, Ruth Mix, Jack Mulhall, Lona Andre, Reed Howes, Nancy Caswell, Bobby Nelson and Joseph Swickard. Elmer Clifton did a fine job as director.

EPISODE TITLES:

1—Perils of the Plains.
2—Tundering Hoofs.
3—Fires of Vengeance.
4—The Ghost Dancers.
5—Trapped.
6—Human Wolves.
7—Demons of Disaster.
8—White Treachery.
9—Circle of Death.
10—Flaming Arrow.
11—Warpath.
12—Firing Squad.
13Red Panther.
14—Custer's Last Ride.
15—The Last Stand.

Rental $3.00 Per Episode

CLANCY OF THE MOUNTED—(Universal)

Approval of Contract Required on This Serial

12 episodes — 24 reels. Epic story of the Royal Northwest Mounted Police by their poet laureate, Robert W. Service. Sergeant Jim must bring in his own young brother to face a trumped-up murder charge, but in the end brings the real culprits to justice. Gorgeous scenic background, whirling rapids and thundering falls, log-jams, woodcraft and fighting a-plenty, so that law may rule the wilderness. (Tom Tyler, Jacqueline Wells.)

CHAPTER HEADINGS:

Toll of the Rapids.
Brother Against Brother.
Ambuscade.
The Storm.
A Desperate Chance.
The Wolf's Fangs.
Night Attack.
Crashing Timber.
Fingerprints.
The Breed Strikes.
The Crimson Jacket.
Journey's End.

Rental $3.00 Per Episode

THE DEVIL HORSE

With Harry Carey, Noah Beery, Frankie Darro, Apache—"The Devil Horse"—and Greta Granstedt. Directed by Otto Brower. Mystery, action and romance. The best story of Ford Beebe, co-author of "The Lightning Warrior" and "The Shadow of the Eagle."

1—Untamed.
2—The Chasm of Death.
3—The Doom Riders.
4—Vigilante Call.
5—The Silent Call.
6—The Heart of the Mystery.
7—The Battle of the Strong.
8—The Missing Witness.
9—The Showdown.
10—The Death Trap.
11—Wild Loyalty.
12—The Double Decoy.

Rental $3.00 Per Episode

FIGHTING MARINES

25 reels. A weird tale of modern science—pirates ruled by one fiend plotting a scheme to annihilate the world, with Grant Withers, Adrian Morris, Ann Rutherford, Robert Warwick.

THE 12 THRILLING CHAPTERS:

(Episode One—3 reels. Remaining episodes—2 reels each)

1—Human Targets.
2—Isle of Missing Men.
3—The Savage Horde.
4—The Mark of the Tiger Shark.
5—The Gauntlet of Grief.
6—Robbers' Roost.
7—Jungle Terrors.
8—Siege of Halfway Island.
9—Death from the Sky.
10—Wheels of Destruction.
11—Behind the Mask.
12—Two Against the Horde.

Rental $3.00 Per Episode

FIGHTING WITH KIT CARSON

Starring Johnny Mack Brown, Betsy King Ross, Noah Beery, Sr., Noah Beery, Jr., Tully Marshall, Lane Chandler and William Farnum.

THE 12 CHAPTERS:

1—The Mystery Riders—3 reels.
2—The White Chief—2 reels.
3—Hidden Gold—2 reels.
4—The Silent Doom—2 reels.
5—Murder Will Out—2 reels.
6—The Secret of Iron Mountain —2 reels.
7—The Law of the Lawless—2 reels.
8—Red Phantoms—2 reels.
9—The Invisible Enemy—2 reels.
10—Midnight Magic—2 reels.
11—Unmasked—2 reels.
12—The Trail to Glory—2 reels.

Rental $3.00 Per Episode

FLASH GORDON

A journey into the realm of fantasy—a glimpse into the future of 1000 years from now. Based on the Flash Gordon newspaper strip. Features Buster Crabbe. 13 episodes.

Rental $3.00 Per Episode

FLAMING FRONTIERS

Based on Peter B. Kyne's novel "The Tie That Binds," this action-packed serial drama reveals the dangers, courage and hardships of the early pioneers. Features John Mack Brown. 15 episodes.

Rental $3.00 Per Episode

THE GALLOPING GHOST

12 smashing episodes. Starring that great football phenomenom, "Red" Grange. This serial is a smash from beginning to end. showing "Red" Grange in action on and off of the football field. It also contains some fine entertainment concerning the temptations, the trials and triumphs of being a football hero. Don't miss "Red" Grange in "The Galloping Ghost."

Rental $3.00 Per Episode

HURRICANE EXPRESS

25 reels. The theme is the rivalry between the railway and air transportation companies, and concerns a young air transport pilot who is seeking to avenge his father's death in a mysterious crash. The cast includes John Wayne, Shirley Grey, Conway Tearle and Tully Marshall.

THE TWELVE EPISODES:

1—The Wrecker.
2—2—Flying Pirates.
3—The Masked Menace.
4—Buried Alive.
5—Danger Lights.
6—The Airport Mystery.
7—Sealed Lips.
8—Outside the Law.
9—The Invisible Enemy.
10—The Wrecker's Secret.
11—Wings of Death.
12—Unmasked.

Rental $2.00 Per Episode

KING OF THE WILD

12 episodes. Walter Miller and Nora Lane. This is a wild animal serial in 12 mighty episodes—the most thrilling, the most startling, the most daring of its type.

THE 12 EPISODES:

1—Man Eaters.
2—The Tiger of Destiny.
3—The Avenging Horde.
4—The Secret of the Volcano.
5—The Pit of Peril.
6—The Creeping Doom.
7—Sealed Lips.
8—The Jaws of the Jungle.
9—The Door of Dread.
10—The Leopard's Lair.
11—The Fire of the Gods.
12—Jungle Justice.

Rental $3.00 Per Episode

THE LOST SPECIAL—(Universal)

Approval of Contract Required on This Serial.

12 episodes—24 reels. An entire railroad train, loaded with gold bullion, disappears without trace. The author, Sir Arthur Conan Doyle, lets the audience in on the crime right from the start, but the four amateur sleuths who strive to unravel the mystery after the police give up are not so fortunate. A high grade adventure tale, lavishly produced. (Frank Albertson, Cecelia Parker, Ernie Nevers, Caryl Lincoln, and large cast.)

CHAPTER HEADINGS:

The Lost Special.
Racing Death.
The Red Lantern.
Devouring Flames.
Lightning Strikes.
House of Mystery.
The Tank-Room Terror.
The Fatal Race.
Into the Depths.
The Jaws of Death.
The Flaming Forest.
Retribution.

Rental $3.00 Per Episode

THE LAST FRONTIER

The savage bullet drank white man's blood . . . and the wagon train halted to defend itself against a tribe of Indians. From the story by Courtney Ryley Cooper. Starring Lon Chaney, Jr. 12 episodes.

Rental $3.00 Per Episode

THE LONE DEFENDER

This is a stirring 12-chapter serial starring Rin-Tin-Tin, Jr., with an all-star cast. An epic of the early pioneer days of the Great West. Recommended as one of the best Western serials. The first episode is 3 reels, the balance are 2 reels each. Following is the list of the chapters:

1—The Mystery of the Desert.
2—The Fugitive.
3—Jaws of Peril.
4—Trapped.
5—Circle of Death.
6—Surrounded by the Law.
7—The Ghost Speaks.
8—The Brink of Destruction.
9—The Avalanche.
10—Fury of the Desert.
11—Cornered.
12—Vindicated.

Rental $2.00 Per Episode

THE LOST CITY

William "Stage" Boyd, Claudia Dell, Ralph Lewis, Kane Richmond, George Haynes, Josef Swickard, William Bletcher, Gina Corrado.

EPISODES:

1—Living Dead Men—3 reels.
2—Tunnel of Death—2 reels.
3—Dagger Rock—2 reels.
4—Doomed—2 reels.
5—Tiger Prey—2 reels.
6—Human Beasts—2 reels.
7—Spider Men—2 reels.
8—Human Targets—2 reels.
9—Jungle Vengeance—2 reels.
10—The Lion Pit—2 reels.
11—Death Ray—2 reels.
12—The Mad Scientist—2 reels.

Rental $3.00 Per Episode

THE LAST OF THE MOHICANS

The immortal story of James Fenimore Cooper, followed faithfuly as to text and presented by such an able cast as Harry Carey, Edwina Booth, Hobart Bosworth and many others. A picture that is most appropriate for school, home or church.

EPISODES:

1—Wild Waters—4 reels.
2—Flaming Arrows—2 reels.
3—Rifle or Tomahawk—2 reels.
4—Riding with Death—2 reels.
5—Red Shadows—2 reels.
6—The Lure of Gold—2 reels.
7—Crimson Trail—2 reels.
8—The Tide of Battle—2 reels.
9—A Redskin's Honor—2 reels.
10—The Enemies' Stronghold—2 reels.
11—Paleface Magic—2 reels.
12—The End of the Trail—2 reels.

Rental $3.00 Per Episode

THE LOST JUNGLE

25 reels. With Clyde Beatty, the Hagenbeck-Wallace Wild Animals, and a great cast. A melodramatic thrill drama of the hunt for a great ancient treasure, guarded against man by all the ferocious beasts of "The Lost Jungle." 12 tremendous chapters, viz.:

EPISODES:

1—Noah's Ark Island.
2—Nature in the Raw.
3—The Hypnotic Eye.
4—The Pit of Crocodiles.
5—Gorilla Warfare.
6—The Battle of Beasts.
7—The Tiger's Prey.
8—The Lion's Blood.
9—Eyes of the Jungle.
10—Human Hyenas.
11—The Gorilla.
12—Take Them Back Alive.

Chapter One, 3 reels. Balance of chapters, 2 reels each.

Rental $3.00 Per Episode

THE LAW OF THE WILD

Twelve episodes, starring Rex, King of Wild Horses, and Rin-Tin-Tin, Jr., Bob Custer, Ben Turpin and Lucille Brown.

EPISODES:

1—The Man Killer.
2—The Battle of the Strong.
3—The Cross-Eyed Goony.
4—Avenging Fangs.
5—A Dead Man's Hand.
6—Horse Thief Justice.
7—The Death Stampede.
8—The Canyon of Calamity.
9—Robber's Roost.
10—King of the Range.
11—Winner Take All.
12—The Grand Sweepstakes.

First Episode—3 reels. Balance—2 reels each.

Rental $3.00 Per Episode

THE LIGHTNING WARRIOR

Featuring Rin-Tin Tin and Frankie Darro. Here is another action serial which keeps your audiences holding onto their seats. One thrill follows another in quick succession. 12 episodes. 4 reels in the first episode—2 reels in each episode thereafter.

Rental $3.00 Per Episode

RELIGIOUS FEATURES AND FEATURETTES

MIRACLE RIDER

33 reels. In this novel story of the modern West, Tom Mix plays a Texas Ranger who braves a thousand deaths to unravel the plot to force his Indian friends from their reservation. Helping Tom display his tricks is his famous horse, Tony, Jr. First episode, 5 reels. Remaining episodes, 2 reels each.

EPISODES:

1—The Vanishing Indian.
2—The Firebrand Strikes.
3—Flying Knives.
4—A Race With Death.
5—Double-Barreled Doom.
6—Thundering Hoofs.
7—The Dragnet.
8—Guerilla Warfare.
9—The Silver Band.
10—Signal Fires.
11—A Traitor Dies.
12—Danger Rides With Death.
13—The Secret of X-94.
14—Between Two Fires.
15—Justice Rides the Plains.

Rental $3.00 Per Episode

MYSTERY SQUADRON

25 reels. The story of "air-racketeers" who are attempting to frustrate the building of a great dam and get control of a secret gold mine. Bob Steele, "Big Boy" Williams and Lucille Browne head the cast.

THE 12 CRASHING, SMASHING CHAPTERS:

1—The Black Ace.
2—Fatal Warning.
3—The Black Ace Strikes.
4—Men of Steel.
5—The Death Swoop.
6—Doomed.
7—Enemy Signals.
8—The Canyon of Calamity.
9—The Secret of the Mine.
10—Clipped Wings.
11—The Beast at Bay.
12—The Ace of Aces.

Rental $3.00 Per Episode

THE MYSTERY MOUNTAIN

With mightiest of western stars—Ken Maynard and his Wonder Horse, "Tarzan." 12 chapters of thrilling action-drama:

1—The Rattler.
2—The Man Nobody Knows.
3—The Eye That Never Sleeps.
4—The Human Target.
5—Phantom Outlaws.
6—The Perfect Crime.
7—Tarzan the Cunning.
8—The Enemy's Stronghold.
9—The Fatal Warning.
10—The Secret of the Mountain.
11—Behind the Mask.
12—The Judgment of Tarzan.

Rental $3.00 Per Episode

PHANTOM EMPIRE

25 reels. Gene Autry, the singing cowboy, has many exciting adventures in a lost underground nation 500 years ahead of earthly science. First episode, 3 reels. Remaining episodes, 2 reels each.

TWELVE SMASHING CHAPTERS:

1—The Singing Cowboy.
2—The Thunder Riders.
3—The Lightning Chamber.
4—The Phantom Broadcast.
5—Beneath the Earth.
6—Disaster From the Skies.
7—From Death to Life.
8—Jaws of Jeopardy.
9—Prisoners of the Ray.
10—The Rebellion.
11—Queen in Chains.
12—The End of Murania.

Rental $3.00 Per Episode

PHANTOM OF THE WEST

10 episodes, Tom Tyler and an all-star cast including William Desmond, Tom Santschi, Dorothy Gulliver, Joe Bonomo, Tom Dugan and others.

EPISODES:

1—The Ghost Rides.
2—The Stairway of Doom.
3—The Horror in the Dark.
4—The Battle of the Strong.
5—The League of the Lawless.
6—The Canyon of Calamity.
7—The Price of Silence.
8—The House of Hate.
9—The Fatal Secret.
10—Rogues' Roundup.

Rental $3.00 Per Episode

QUEEN OF THE JUNGLE

Twelve episodes of two reels each. A little girl falls to sleep in a balloon where she has gone to hide. The balloon breaks away from its moorings. A jungle tribe are performing their rites when this strange thing is spied in the skies. When it falls to the ground they discover this strange white child. She is made their queen. The first episode commences and ends with a thrill, and the thrills increase until the last foot of the last reel.

Rental $3.00 Per Episode

THE RETURN OF CHANDU

Bela Lugosi, Clara Kimball Young and Bryant Washburn in a breath-taking, hair-raising story dealing with magic and the magician. Adapted from the famous radio drama. 12 smashing episodes:

1—The Chosen Victim.
2—The House on the Hill.
3—On the High Seas.
4—The Evil Eye.
5—The Invisible Circle.
6—Chandu's False Step.
7—The Mysterious Island.
8—The Edge of the Pit.
9—The Invisible Terror.
10—The Crushing Rock.
11—The Uplifted Knife.
12—The Knife Descends.

Rental $3.00 Per Episode

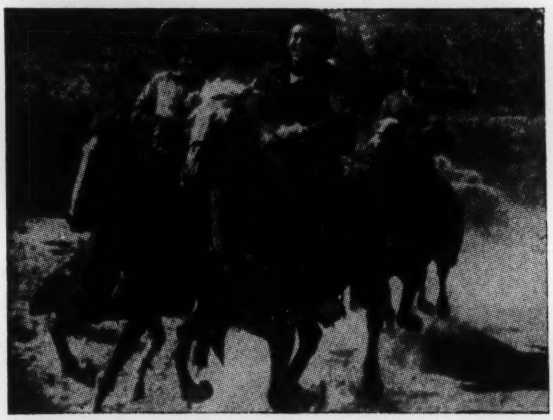
RIDERS OF DEATH VALLEY—(Universal)

15 episodes. 30 reels. Vigilantes battle claim-jumpers in search for the fabled Lost Aztec mine. After it is found there is a thrilling see-saw battle to hold it. Every type of action thrill known to the chapter-play is lavished on this super-serial. The cast alone is guarantee of its extraordinary quality: Dick Foran, Leo Carrillo, Buck Jones, "Big Boy" Williams, Charles Bickford, Jeanne Kelly.

CHAPTER HEADINGS:

Death Marks the Trail.
The Menacing Herd.
The Plunge of Peril.
Flaming Fury.
The Avalanche of Doom.
Blood and Gold.
Death Rides the Storm.
Descending Doom.
Death Holds the Reins.
Devouring Flames.
The Fatal Blast.
Thundering Doom.
The Bridge of Disaster.
A Fight to the Death.
The Harvest of Hate.

Rental $3.00 Per Episode



SEA RAIDERS—(Universal)

12 episodes. 24 reels. Youngsters growing up along waterfront, stumble on foreign sabotage band, and frustrate plans to steal new torpedo launch intended for the U. S. Navy. Fires, wrecks, explosions, plane crashes, sinking ships, whaler battles, and many other thrills feature this unusual serial. Cast includes the famous "Dead End Kids" and the "Little Tough Guys."

CHAPTER HEADINGS:

The Raider Strikes.
Flaming Torture.
The Tragic Crash.
The Raider Strikes Again.
Flames of Fury.
Blasted from the Air.
Victims of the Storm.
Dragged to Their Doom.
Battling the Sea Beast.
Periled by a Panther.
Entombed in the Tunnel.
Paying the Penalty.

Rental $3.00 Per Episode

SKY RAIDERS

With Donald Woods, Billy Halop, Robert Armstrong, Kathryn Adams, Edward Ciannelli, Bill Cody, Jr. Amazing air adventure against spies in the skies. Heroes battle for America's Air Defense in the most sensational sky serial ever made.

12 Thrill-Powered Chapters

1—Wings of Disaster.
2—Death Rides the Storm.
3—The Toll of Treachery.
4—Battle in the Clouds.
5—The Fatal Blast.
6—Stark Terror.
7—Flaming Doom.
8—The Plunge of Peril.
9—Torturing Trials.
10—The Flash of Fate.
11—Terrors of the Storm.
12—The Winning Worriors.

Rental $3.00 Per Episode

TRAIL OF THE ROYAL MOUNTED

10 action-thrill Chapters. They rode hard, and fought harder, for the honor of the Mounties was at stake—and they always get their man. Red bloodhounds of the law crash the gates of death. An epic of courage, gallantry and loyalty. Justice is swift when G-Men of Canada take the trail. A serial for all the family.

Rental $3.00 Per Episode

SHADOW OF THE EAGLE

Twelve episodes. The first episode three reels, the other episodes two reels each. Starring John Wayne, Dorothy Gulliver, Kenneth Harlan, Walter Miller. A thrill-packed serial of carnival life and adventure high in the sky. All the color and excitement of a three-ring circus, with enough action for a dozen serials. It also is a baffling and mysterious story and will hold its audience spellbound from the opening of the first chapter until the end of the 12th chapter.

Rental $2.00 Per Episode

THE SIGN OF THE WOLF

10 episodes. Starring Rex Lease, Virginia Brown Faire, Harry Todd, Jack Mower, Joe Bonomo, Josephine Hill, Robert Walker, All Ferguson and Edmond Cobb.

EPISODES:

1—Drums of Doom.
2—The Dog of Destiny.
3—Wolf's Fangs.
4—Fatal Shot.
5—The Well of Terror.
6—The Wolf Dogs.
7—Trapped.
8—The Secret Mark.
9—Tongues of Flame.
10—Lost Secret.

Rental $2.00 Per Episode

SCOUTS TO THE RESCUE

Jackie Cooper pits his scouting ability against the cunning of a savage Indian tribe and the villainy of a counterfeiting ring, to win out after a series of thrilling incidents. 12 episodes.

Rental $3.00 Per Episode

THE NEW ADVENTURES OF TARZAN

With Herman Brix, Ula Holt, Frank Baker. Twelve punch-packed chapters:

1—The New Adventures of Tarzan —(*)2 reels—43 min.
2—Crossed Trails—2 reels—19 min.
3—The Devil's Noose—2 reels—19 min.
4—River Perils—2 reels—19 min.
5—Unseen Hands—2 reels—21 min.
6—Fatal Fangs—2 reels—16 min.
7—Flaming Waters—2 reels 19 min.
8—Angry Gods—2 reels—19 min.
9—Doom's Brink—2 reels—18 min.
10—Secret Signals—2 reels—19 min.
11—Death's Fireworks -2 reels—20 min.
12—Operator No. 17—2 reels—20 min.

(*) Chapter One, "The New Adventures of Tarzan," is actually four reels in length, but for convenience in booking and billing it is classed and charged as two reels.

Rental $3.00 Per Episode

THE THREE MUSKETEERS

12 terrific chapters. Starring John Wayne, Ruth Hall, Jack Mulhall, Raymond Hatton, Noah Beery, Jr., Francis X. Bushman, Jr.

EPISODES:

1—The Fiery Circle.
2—One for All and All for One.
3—The Master Spy.
4—Pirates of the Desert.
5—Rebels' Rifles.
6—Death's Marathon.
7—Naked Steel.
8—The Master Strikes.
9—The Fatal Cave.
10—Trapped.
11—The Measure of a Man
12—The Glory of Comrades.

Rental $3.00 Per Episode

VANISHING LEGION

26 gigantic reels. Starring Harry Carey, Edwina Booth, Frankie Darro, Yakima Canute and Rex, the king of wild horses. The setting of this serial is in the Oklahoma oil fields in the early days. It has all the thrills of a western combined with those of a melodrama. This serial will bring the patrons to your show week after week. Don't fail to book it.

4 reels in the first episode—2 reels in each episode thereafter.

Rental $3.00 Per Episode

THE WOLF DOG

Starring Rin-Tin-Tin, Jr., Frankie Darro, "Boots" Mallory, George Lewis, Fred Kohler, Hale Hamilton and Henry Walthall. 12 episodes.

1—Call of the Wilderness.
2—The Shadow ow a Crime.
3—The Fugitive.
4—A Dead Man's Hand.
5—Wolf Pack Law.
6—The Gates of Mercy.
7—The Empty Room.
8—Avenging Fangs.
9—Wizard of the Wireless.
10—Accused.
11—The Broken Record.
12—Danger Lights.

Rental $3.00 Per Episode

THE WHISPERING SHADOW

Bela Lugosi, Henry B. Walthall, Karl Dane, Viva Tattersall, Malcolm MacGregor, Robert Warwick, Roy D'Arcy, George Lewis, Ethel Clayton, Lloyd Whitlock.

EPISODES:

1—The Master Magician.
2—The Collapsing Room.
3—The All-Seeing Eye.
4—The Shadow Strikes.
5—Wanted for Murder.
6—The Man Who Was Czar.
7—The Double Room.
8—The Red Circle.
9—The Fatal Secret.
10—The Death Warrant.
11—The Trap.
12—King of the World.

First episode, 3 reels. Balance, 2 reels each.

Rental $3.00 Per Episode

YOUNG EAGLES

(Officially endorsed by the Boy Scouts of America).

TWELVE THRILLING CHAPTERS:

1—The Crash—(*) 2 reels—33 min.
2—Drums of Hate—2 reels—19 min.
3—City of the Dead—2 reels—22 min.
4—Bridge of Doom—2 reels—19 min.
5—Treasure Trails—2 reels—19 min.
6—Fangs of Flame—2 reels—19 min.
7—Tropic Fury—2 reels—17 min.
8—Wings of Terror—2 reels—18 min.
9—The Last Lagoon—2 reels—19 min.
10—Jungle Outlaws—2 reels—17 .... min.
11—Trapped—2 reels—19 min.
12—Out of the Sky—2 reels—19 min.

(*) Chapter One "The Crash," is actually three reels in length, but for convenience in booking and billing it is actually classed and charged as two reels.

Rental $3.00 Per Episode

LAILA

5-episode serial. Especially appropriate for schools—rich in educational and entertainment value. Each episode is two to three reels in length. The story: An authentic story of Lapland. Actually produced on location. Dialogue in the Lapland language with English titles. Aslak Laajie rescued a sleeping baby from wolves, adopted the baby, loved her, and called her Laila. This picture not only unfolds an interesting story, but it portrays the life and ways of the Laplanders, with their great herds of reindeer. The Laps wander through the land in search of food for their animals, or spend the winter camped out in tents. A most unusual picture. Titles of the chapters:

1—The Foundling.
2—An Answered Prayer
3—Daro Blood Cries Out.
4—The Handsome Stranger.
5—Attacked by Wolves.

Rental $3.00 Per Episode

2-REEL COMEDIES

"DANNY KAYE SUBJECTS"

Three SPECIAL 2 reel subjects—the only ones ever made with DANNY KAYE, sensational star of the Broadway stage success "LET'S FACE IT", who has just completed what is considered the greatest musical feature of the year "UP IN ARMS" for Samuel Goldwyn. When "UP IN ARMS" hits the screen, Danny Kaye will be the most sensational new name on the screen. And we give you . . .

"DIME A DANCE"

Danny Kaye making his initial screen appearance opposite the singing comedienne, Imogene Coca—19 minutes.

"GETTING AN EYEFUL"

Here, Danny Kaye and Charles Kemper put over as clever a comedy as has been seen in the shorts field. Danny Kaye introduces his famous Russian character to the screen. Running time . . . 17 minutes.

DANNY KAYE in "CUPID TAKES A HOLIDAY"

This is Danny's first starring vehicle and gives him splendid opportunity to show his versatility. As Nicholas Nicholi he gives the screen what has made him famous on the stage and records. Running time—16 minutes.

Rental $3.00 Each

BEN TURPIN COMEDIES

"The Eyes Have It"
"Two Lonely Knights"
"Idle Eyes"
"Cock-Eyed Hero"

Rental $3.00 Each

CHARLIE CHAPLIN TWO-REELERS

The Floorwalker
The Immigrant
The Count
Behind the Screen
Vagabond
The Adventurer
The Fireman
Easy Street
One Am
The Rink
The Pawnshop
The Cure
The Champion

Rental $3.00 Each

ANDY CLYDE — HARRY GRIBBON 2-REEL COMEDIES

Whirls and Girls.
Bee's Buzz.
Golfers.
Big Palooka.
Barber's Daughter.
Sugar Plum Papa.
He Trumped Her Ace.

Rental $3.00 Each

EDWARD EVERETT HORTON 2-REEL COMEDIES

Prince Gabby.
Good Medicine.
Ask Dad.
Trusting Wives.
Right Bed.
Eligible Mr. Bangs.

Rental $3.00 Each

MICKEY McGUIRE'S 2-REEL COMEDIES

Mickey's Touchdown.
Mickey's Covered Wagon.
Mickey's Rescue.
Mickey's Fair Play.
Mickey, the Romeo.
Mickey's Merry Men.
Mickey's Champs.
Mickey's Master Mind.
Mickey the Medicine Man.
Mickey's Tent Show.
Mickey's Minstrels.
Mickey's Mixup.
Mickey's Midnight Follies.
Mickey's Round Up.
Mickey's Revolution.
Mickey's Victory.
Mickey's Heroes.
Mickey's Luck.
Mickey's Warriors.
Mickey's Whirlwinds.
Mickey's Big Project.
Mickey's Wild Capers.
Mickey's Big Moment.
Mickey's Strategy.
Mickey's Clever Tricks.
Mickey's Adventures.
Mickey's Vacation.
Mickey's Good Deeds.

Rental $3.00 Each

LAUREL AND HARDY SUBJECTS

Come Clean.
One Good Turn.
Any Old Port.
Helpmates.
County Hospital
Scram.
Their First Mistake.
Towed In A Hole.
Twice Two.
Busy Bodies.
Dirty Work.
Midnight Patrol.

Rental $3.00 Each

CHARLIE CHASE SUBJECTS

The Panic Is On.
Ship The Maloo.
What A Bozo.
Hasty Marriage.
The Tobasco Kid.
The Nickel Nurser.
In Walked Charlie.
First In War.
Young Ironsides.
Girl Grief.
Now We'll Tell One.
Mr. Bride.
Fallen Arches.
Nature In The Wrong.
His Silent Racket.
Arabian Tights
Sherman Said It.
Luncheon At Twelve.
Mid Summer Mush.

Rental $3.00 Each

PITTS TODD

Catch as Catch Can.
War Mammas.
The Pajama Party.
On The Loose.
Sealskins.
Red Noses.
Strictly Unreliable.
The Old Bull.
Show Business.
Alum and Eve.
The Soilers.
Sneak Easily.
Asleep in The Feet.
Maids a la Mode.
Bargain of a Century.
One Track Minds.

Rental $3.00 Each

TAXI SERIES

What Price Taxi?
Stranger Innertube.
Hot Spot.
Taxi For Two.
Thundering Taxis.
Bring Back A Wife.
Wreckety Wrecks.
Taxi Barons.
Call Her Sausage.
The Rummy.

Rental $3.00 Each

TODD-KELLY

Beauty and the Bus.
Backs to Nature.
Air Fright.

Rental $3.00 Each

MUSICALS

Rhapsody in Brew.

Rental $3.00

CHIMP SERIES

Skimpy.
Broadcasting.
Chasing Around.
Little Divorcee.
My Children.
Nine Nights in a Bar Room.
Little Cinnamon.
Africa Squawks.
Little Covered Wagon.
Little Big House.
Apeing Hollywood.
Blimp Mystery.

Rental $3.00 Each

SHIRLEY TEMPLE SERIES

(Assisted by Andy Clyde, Junior Coughlan and Kenneth Howell)

Dora's Dunking Doughnuts.
Pardon My Pups.
Merrily Yours.
Managed Money.

Rental $3.00 Each

CHRISTIE COMEDIES

Adam's Evening, with Johnny Arthur and Frances Lee.

When Caesar Ran a Newspaper, with Raymond Hatton and Sam Hardy.

A Hint to Brides, with Johnny Arthur and Ruth Taylor.

Weak But Willing, with Will Kind, Dot Farley, Billy Bevan.

A Bird in the Hand, with Lois Wilson, Dot Farley, Jason Robards.

The Stronger Sex, with Carmel Myers, Bert Roach, George E. Stone.

Dangerous Females, with Marie Dressler and Polly Moran.

The Sleeping Porch, with Raymond Griffith and John Litel.

Dear Vivian, with Raymond Hatton, Sam Hardy, Lorraine Eddy.

The Fatal Forceps, with Ford Sterling.

Down With Husbands, with Johnny Arthur, Bert Roach, Frances Lee.

The Duke of Dublin, with Charles Murray and Mary Gordon.

That Red Headed Hussy, with Charlie Grapewin.

Faro Nell, or, In Old Californy, with Louise Fazenda.

So This Is Paris Green, with Louise Fazenda and George E. Stone.

For Love or Money, with Lois Wilson and Bert Roach.

Scrappily Married, with Johnny Arthur and Ruth Taylor.

He Loved the Ladies, with Taylor Holmes and Albert Conti.

He Did His Best, with Taylor Holmes and Carmel Myers.

Let Me Explain, with Taylor Holmes, John T. Murray, Vivian Oakland.

His Honor the Mayor, with Charlie Murray.

Ladies' Choice, with Charlie Grapewin.

Hot Lemonade, with Louise Fazenda and Johnny Arthur.

Jed's Vacation, with Charlie Grapewin.

Rental $2.00 Each

MISCELLANEOUS 2-REEL COMEDIES

White Hope. Starring Joe Cook.

Trusting Wives. Starring Buster West and Tom Patricola.

Thanks Mr. Cupid. Starring Neila Goodelle.

One Run Elmer. Starring Buster Keaton.

Dame Shy. Starring Buster West and Tom Patricola.

Give 'Em Air. Starring Joe Cook.

Montague the Magnificent. Starring Bert Lahr.

Going Going Gone. Starring Buster West and Tom Patricola.

Slacks Appeal. Starring Neila Goodelle.

E Flat Man. Starring Buster Keaton.

Happy Heels. Starring Buster West and Tom Patricola.

Silly Night. Starring Jefferson Machamer.

Penny Wise. Starring Joe Cook.

Timid Young Man. Starring Buster Keaton.

Parked in Paree. Starring Buster West and Tom Patricola.

Kiss Me Goodbye. Starring Magda Schneider, Arthur Roscoe and Nauton Wayne.

Artists Muddles, Andy Clyde.

Who's Crazy, Harry Gribbon.

Mr. Widget, Joe Cook.

The Brain Busters, Vince Barnett and Billy Gilbert.

Hurray for Hooligan, Buster West.

Boy Oh Boy, Bert Lahr.

Blue Blazes, Buster Keaton.

Gals and Gals, Jefferson Machamer.

America or Bust.

Seein' Injuns.

Under the Cockeyed Moon.

The Wages of Gin.

One More Chance—Bing Crosby.

Sheba of the South Seas—Louise Fazenda.

As the Crow Flies—Moran and Mack.

Two Black Crows in Africa—Moran and Mack.

Constibule—Andy Clyde.

The Cannon Ball—Andy Clyde drives a locomotive.

Clancy at the Bat—Andy Clyde and sand lot baseball.

Monkey Business in Africa—Andy Clyde in a jungle journey.

Back Page—Local boy makes good as a reporter.

New Half Back—Andy Clyde in a gridiron struggle.

Freshmans Finish—Andy Clyde in a capricious campus comedy.

Hockey Hick—Eugene Palette in a side-plitting comedy.

Knight Duty—Modern knighthood in flower.

Shopping with Wifie—Andy Clyde collects laugh merchandise.

The Dancing Gob—Buster West.

Christmas Presents—Karl Dane, Fern Emmet.

Too Many Orphans.

Boarding House Blues—Louise Fazenda.

I Surrender Dear—Bing Crosby.

Yokel Dog Makes Good.

Blue of the Night—Bing Crosby Musical.

Sing, Bing, Sing—Bing Crosby.

The Singing Plumber—Donald Novis.

The Singing Boxer—Donald Novis.

Ma's Pride and Joy—Donald Novis.

Meet the Quinze.

College Daze.

O What a Night—Louise Fazenda.

Puppet Love.

Torchy.

Torchy Passes the Buck.

Love Your Neighbor—Charlotte Greenwood.

Match Play.

Uppercut O'Brien—Harry Gribbon.

Crashing Hollywood.

The Tamale Vendor.

Taxi Troubles—Andy Clyde.

Speed in the Gay Nineties—Andy Clyde.

Only Fooling—Al Cook and Alberta Vaughn.

No More West—Bert Lahr.

She Whoops to Conquer—Zasu Pitts.

Back Stage Frolics—Alberta Vaughn.

The Knife of the Party.

Otto Grey's Cowboys—Hill Billy Band.

Where There's a Will—Alberta Vaughn.

We Want Music—Alberta Vaughn

Lunatic at Large—Alberta Vaughn.

It Happened One Day—Alberta Vaughn.

Father's Night Out—Alberta Vaughn.

The Fatal Mixup—Alberta Vaughn.

Fancy Clothes—Alberta Vaughn.

Show Folks—Alberta Vaughn.

Radio Razzberry—Perry Murdock.

Everybody Loves Music—Donald Novis.

Breaking Into Society—Louise Fazenda.

Amuse Your Self—Jefferson Machamer.

Choose Your Partner—Fred Allen.

Comic Artist's Home Life—JEFFERSON MACHAMER.

Diamonds in the Rough—Diamond Bros.

Gold Bricks—Bert Lahr.

Grand Slam Opera—Buster Keaton.

Heir Today—Tim and Irene.

Hi Ya Doc—Buster West.

Home on the Range—Niela Goodelle.

Jail Bait—Buster Keaton.

Knockout Drops—Norman Philip.

Man to Man—Iris Adrian and Geo. Shelton.

Meet the Bride—Pat Rooney and H. Timberg, Jr.

Melody Girl—Niela Goodelle.

Miss They Missed—Willie Howard.

One Big Happy Family—Tim and Irene.

Peaceful Relations—Tim and Irene.

Ready to Serve—Buster Keaton.

Sweeties—H. Timberg, Jr. and Pat Rooney.

Hunger Pains—Dorothy Granger.

Three Men on a Limb—Buster Keaton.

Going Spanish.

Girl Crazy.

Easy Money.

Timid Ghost.

How'm I Doing?

Who's Who?

Moonlight and Melody—Lucille Page.

Just Another Murder—Vince Barnett and Billy Gilbert.

Act Your Age—with Edgar Kennedy.

Who's Who—Neila Goodelle.

Kennedy the Great.

Fuller Gush Man.

Mismanaged.

Trailing Along.

Wedding Bells—Lloyd Hamilton.

Foolish Hearts.

Queenie in Hollywood.

Uncle Sol Solves It—Eddie Lambert and Beverly Sills.

Swing's the Thing—Musical.

A Quiet Fourth—Betty Grable.

Melody in May—Musical—Ruth Etting.

Lalapalooza—(Musical)—Buddy Doyle and Eddie Gribbon.

Salesmanship Ahoy—Walter Catlett.

Sleepy Time (Musical)—Ruth Etting.

Southern Style (Musical)—Ruth Etting.

Bandits and Ballads (Musical)—Ruth Etting.

An Old Spanish Onion (Musical)—Ruth Etting.

Radio Barred—Johnny Arthur.

Bad Medicine—Gene Austin, Clyde Hager, Willie Best.

Swing Vacation—Buddy Rogers.

Doggone—James Finlayson.

Plumb Crazy—Pat C. Flick.

Sea Melody—Ted Fio Rito.

Sales Slips—Ernest Truex.

Call My Doctor—Lew Seymour.

Here We Are—Snub Pollard.

A Wed Time Story—Lew Fields.

Uppercutlets—Walter Catlett.

Who's Loony Now—Jack Norton, Billy Gilbert.

The Stupor Visor—Jack Norton and Pat Gleason.

Sleepless Hollow—Harry Gribbon

He Kissed the Bride—Buster West and Tom Patricola.

Musical Bandit—Roy Whitley and His Six Bar Boys.

What's To Do?—Shirley Temple, Junior Coghlan, Dorothy Ward, Kenneth Howell.

The Affairs of Pierre—Willie Howard. One of the world's greatest comedians brings to the screen his famous radio program, "Lessons in French."

She's My Lily—Will Mahoney. A musical comedy with Marion Martin, The Five Spirits of Harmony and the Six Mountain Melodeers.

Hotel Anchovy—The Three Ritz Brothers.

Nifty Nurses—A musical comedy with Billy Gilbert.

Way Up Thar—Joan Davis. This is a great hillbilly comedy.

Good Luck-Best Wishes — The Pickens Sisters. They introduce four new songs—"One Step to Love"—"Smile a Little Bit"—"Good Luck and Best Wishes" and "The Party Is Over," and in addition America's greatest musical genius, Ferdie Grofe and Orchestra.

Hi-Ho Hollywood—With Harriet Hutchins. A farce of Hollywood and breaking into the movies, with Harriet Hutchins.

Ditto—Buster Keaton. The famous comic is at his "deadpan" best in this farce of getting mixed up with a pair of twin sisters.

Holding the Bag—This subject introduces the "Sisters of the Skillet," the famous radio team.

Fun's Fun—Jefferson Machamer The famous illustrator and his girls entertain you with cartoons, beautiful models and musical talent.

The Screen Test—Buster West, one of the best of the young comedians, and his partner, Tom Patricola, have their trials and tribulations in breaking into the movies.

Getting An Eyeful.

Cupid Takes A Holiday.

Don't Argue.

No Kiddin.

Mitt the Prince.

Double Trouble.

Cockeyed Hero.

2 Lonely Knights.

Ride 'Em Cowboy.

Idle Eyes.

Eyes Have It.

Spring Time Saps.

Bubbling Over.

Ask Dad.

A Shooting Affair.

Act Your Age.

Brain Buster.

Bee's Buzz.

Eligible Mr. Bangs.

Good Medicine.

Dream House.

Billboard Girl.

Rental $3.00 Each

ONE REEL COMEDIES

MISCELLANEOUS

One Quiet Night
That's My Meat
Jock and Jill
The County Fair
Fuzzy's Shopping Spree (Monkeys)
Any Day in Hollywood—Thrills of Movie-making
Aces Wild
Exposing Evolution
Seeing Is Believing—Or Is It?
Buzzsaws and Dynamite (Puppets)
Cuckoo News Reel—Raymond Knight
Life's Little Problems— Raymond Knight
Tell Me If It Hurts
Goofy Games
Idle Roomers
Honeymoon Trio
Smart Work
Anybody's Goat
Grooms In Gloom
A Nose for News
Two Lame Ducks
Tars and Stripes
Hooks and Jabs
Only the Brave
War Babies
Giddy Age
Kid In Africa
Cavalcade of Stuff No. 1
Cavalcade of Stuff No. 2
Bobs Busy Day
Bring On Bing
What Ho Romeo
Hi Ho Broadway
Song of the Rio Grande
Kid in Hollywood
Sing Clown Sing
Crooners Holiday
Oh Dear
Boom Boom
Television Romance
First Chisler
Singing Cowboy
Ring Goes Round
Alpine Rendezvous
Queen's Birthday
Pot Luck
Miss Lonely Hearts
Love Goes West
Seeing Nellie Home
Gimme My Quarterback
Going Native
Rodeo Day*
Dental Follies
Play Girls
Strike You're Out
Oddities in the Law
Krazi Inventions
Then Came the Yawn
See Uncle Sol
Calling All Crooners
Sorority Blues
Time on Their Hands
Sawdust and Side Lights

Rental $1.50 Each

COLUMBIA MUSICAL COMEDIES AND NOVELTIES

One Reel Each

Yankee Doodle Home (Nick Lucas)
A Night in a Music Hall (Pinky Tomlin and the Fanchonettes).
A Night at the Troc (Fanchon and Marco production with Ziss Black and orchestra).
Drugstore Follies (Roscoe Ates).
Montmarte Madness (Fanchon and Marco production with Nathaniel Shilkret's orchestra)
Timberland Revels (All-American musical novelty)
Rooftop Frolics
Brokers' Follies

Rental $1.50 Each

CABIN KIDS COMEDIES

(Formerly released by 20th Century Fox)

Gifts in Rhythm
Pink Lemonade
Rhythm Saves the Day
Trailer Paradise
Way Down Yonder
All's Fair
Life of the Party

Rental $1.50 Each

COMEDIES WITH MUSIC

(Formerly released by 20th Century Fox)

Bing Must Sing (Bing Crosby)
Tune In On Bing (Bing Crosby)
Time Out for Music (Donald Novis)
Say It With Song (Donald Novis)
All For a Song (Donald Novis)

Rental $1.50 Each

EASY ACES

A World Within
Jolly Old London
A Job's a Job
Pharaoh Land
Topnotchers
Little New York
Six Day Grind
Fool Your Friends
An Old-Fashioned Movie
Winter at the Zoo
Etiquette
A Capitol Idea
Tricks of Trade
Unusualities

Rental $1.50 Each

MEDBURY—TRAVELAUGHS

Reno
Turkey
Death Valley
Borneo
Voodooland
Abyssinia
Manadalay
Wild West
Wide Open Faces
Philippines
Dancing Nations
Wonders of the World

Rental $1.50 Each

SNOOKEY THE CHIMP COMEDIES

Overall Hero
Big Show
Beat It
You'll Be Surprised
Fresh Heir
The Chimp's Adventure
Tray Full of Trouble
Foiled Again
You'd Be Surprised

Rental $1.50 Each

OLD TIME MOVIES

COWBOYS AND INDIANS

Hilarious selection taken from original negatives of early cowboy films . . . Rootin', tootin', shootin'—gun play—fast riding—hair-raising escapades . . . Laughs for the older folks . . . thrills for the kids!

CAST ADRIFT

(And How!) Fatty Arbuckle and Mabel Normand, movie stars of yesteryear, in a hilarious frolic of comedy action . . . Old time comedians in side-splitting stunts . . . Fatty's rival conspires for the "gal." . . . Saved at last, the happy ending.

THE GREAT TRAIN ROBBERY

First complete reel ever made.

GAY NINETIES

CHARLIE'S LAUGHING GAS

Charlie Chaplin.

MEMORIES OF OUR PAST

John Bunny, Flora Finch, Marie Dressler.

MOVIE LAND MEMORIES

Rudolph Valentino.

BORDER LAW

GOOD OLD DAYS

HITS OF THE PAST

REVENGE ON THE RANGE

Rental $1.50 Each

CARTOON SECTION

COLORED CARTOONS

TECHNICOLOR CARTOONS

One Reel Each

Bold King Cole.
Cupid Gets His Man.
It's a Greek Life.
Molly-Moo-Cow and the Indians.
Trolley Ahoy.
Neptune's Nonsense.
The Goose That Laid the Golden Eggs.
Molly-Moo-Cow and the Butterflies.
Molly-Moo-Cow and Rip Van Winkle.
Molly-Moo-Cow and Robinson Crusoe.
Toonerville Picnic.
Toonerville Trolley.
A Waif's Welcome.

Rental $2.50 Each

VAN BEUREN-RKO'S COLORED CARTOONS

Pastry Town Wedding
Parrotville Fire Department.
Sunshine Makers.
Parrotville Old Folks.
Parrotville Post Office.
Japanese Lanterns.
Spinning Mice.
Picnic Panic.
The Merry Kittens.
The Rag Dog.
Hunting Season.
Scotty Finds a Home.
Bird Scouts.

Rental $2.50 Each

CINE COLOR CARTOONS

Beauty Shoppe.
Baby Checkers.
Boy Meets Dog.
Grandpop's Busy Day.
The Big Bad Wolf.
Jack Frost.
Aladdin's Lamp.
Old Mother Hubbard.
Pin Cushion Man.
The King and the Tailor.
Mary's Lamb.

Rental $2.50 Each

WHEN ORDERING FILMS PLEASE LIST SUITABLE SUBSTITUTIONS

BLACK AND WHITE CARTOONS

Aesop's Fables

Big Scare.
Concentrate.
The Animal Fair.
The Big Cheese.
The Ball Game.
Bully's End.
Circus Capers.
Cowboy Blues.
Cinderella Blues.
Cowboy Cabaret.
Cat's Canary.
Circus Romance.
Chinese Junk.
Catfish Romance.
Dixie Days.
Down in Dixie.
Fly's Bride.
Frozen Frolics.
Farm Foolery.
The Fly Guy.
Fisherman's Luck.
Fun on the Ice.
Fli Hi.
Family Shoe.
Fairyland Frolics.
Fly Frolic.
Farmerette.
Feathered Follies.
Good Old School Days.
Haunted Ship.
Hot Tamale.
Horse Cops.
Bring 'Em Back Half Shot.
Bugs and Books.
Laundry Blues.
Love in a Pond.
Last Dance.
Midnight.
Mad Melody.
Making 'Em Move.
Magic Art.
Night Club.
Nursery Scandal.
Office Boy.
Oom Pah Pah.
Old Hokum Bucket.
Play Ball.
Paleface Pup.
Piccananny Blues.
Panicky Pup.
Romeo Robin.
Radio Racket.
Romeo Monk.
Runaway Blacky.
Stone Age Error.
Stone Age Romance.
Summer Time.
Singing Saps.
Snowtime.
Silvery Moon.
Toytown Tale.
Toytime.
Tumbledown Town.
Venice Vamp.
Happy Polo.
Hokum Hotel.
In Dutch.
Jail Breakers.
Jungle Jazz.
King of Bugs.
Little Red Riding Hood.
The Jungle Fool.
Ship Ahoy.
Noah Knew His Ark.
Stage Struck.
Custard Pies.
Barnyard Melody.
Western Whoopee.
Wild Goose Chase.
A Yarn of Wool.
Mill Pond.
Presto Chango.
Skating Hounds.
A Faithful Pup.
Wood Choppers.
Foolish Follies.
Bugville Romance.
Dinner Time.
Gypped in Egypt.
A Close Call.

Rental $1.25 Each

HARMAN-ISING CARTOONS

Tale of the Vienna Woods.
Bosko's Parlor Pranks.
Hey Hey Fever.
The Lost Chick.
Good Little Monkeys.
Poor Little Me.
The Old Plantation.
Run, Sheep, Run.
The Old House.
To Spring.
Circus Daze.
Bosko and the Pirates.
Bosko's Easter Eggs.
Bosko in Bagdad.
Bosko and the Cannibals.
Honeyland.
The Old Pioneer.
2—The Pups.
2—Little Cheezer.
Kings of the Arctic.
Bottle.
Pipe Dreams.

Rental $1.50 Each in Black and White.
Rental $2.50 Each in Color.

FELIX THE CAT CARTOONS

Futuritzy.
Who'se Whoopee.
Romeeow.
Sculls and Skulls.
Oceantics.
Forty Winks.
Tee Time.
Oily Birds.
Whys & Otherwise.
Arabiantics.
Outdoors-Indoors.
Non-Stop Flight.
Astronomeous.

Rental $1.25 Each

LATEST CARTOONS

Three Bears.
Little Red Hen.
Tom Thumb.
Don Quixote.
Jack and the Beanstalk.
Simple Simon.
Brementown Musicians.
Brave Tin Soldier.
Queen of Hearts.
Happy Days.
Summertime.
Ali Baba.

Rental $1.25 Each

PHIL COOK AND HIS PUPPETS

Hopping the Bells.
Hotel Mystery.

Rental $1.25 Each

AMOS 'N' ANDY CARTOONS

The Lion Tamer.
The Rasslin' Match.

Rental $1.25 Each

TOM AND JERRY CARTOONS

What a Night.
Polar Pals.
Trouble.
Jungle Jam.
A Swiss Trick.
Rocketeers.
Rabid Hunters.
In the Bag.
Joint Wipers.
Pots and Pans.
Tuba Tooter.
Plane Dumb.
Red Skin Blues.
Jolly Fish.
Barnyard Bunk.
A Spanish Twist.
Piano Tuners.
Pencil Mania.
Tight Rope Tricks.
Magic Mummy.
Happy Hoboes.
Puzzled Pals.
Hook and Ladder Hokum.
In the Park.
Dough Nuts.
Phantom Rocket.

Rental $1.25 Each

MUTT AND JEFF CARTOONS

Slick Sleuths.
Westward Whoa.
Aroma of the South Sea.

Rental $1.25 Each

CELEBRITY CARTOONS

The Big Bad Wolf.
Aladdin's Lamp.
Old Mother Hubbard.
Jack Frost.
Pin Cushion Man.
The King and the Tailor.
Mary's Little Lamb.
Boy Meets Dog.
Puss in Boots.
Dickey Cat.
Little Black Sambo.
Sinbad the Sailor.
Headless Horseman.

Rental $1.25 Each

FLIP THE FROG CARTOONS

Bulloney.
Soda Squirt.
Techno Cracked.
Pale Face.
Chinaman's Chance.
Flip's Lunchroom.
Jail Birds.
Movie Mad.
Village Barber.
Coocoo Murder Case.
Stormy Seas.
Village Smitty.
Flying Fists.
Soup Song.
Fire Fire.
What a Life.
The Goal Rush.
The Pony Express.
The Music Lesson.
Puddle Pranks.
Ragtime Romeo.
Laughing Gas.
Little Orphan Willie.
Fiddlesticks.
New Car.
School Days.
The Bully.
Room Runners.
The Circus.
Nurse Maid.
Funny Face.
Coo-Coo, the Magician.
The Village Specialist.
Spooks.
The Milkman.
Africa Squeaks.
Office Boy.
Puppy Love.

Rental $1.25 Each

WILLIE WHOPPER CARTOONS

Good Scout.
Jungle Jitters.
Insultin the Sultan.
Reducing Creme.
Rasslin Round.
Cave Man.
Viva Willie.
Play Ball.
Spite Flight.
Stratos Fear.
Davy Jones Locker.
Vulcan Entertains.
Robin Hood, Jr.

Rental $1.25 Each

CUBBY BEAR CARTOONS

Opening Night.
Love's Labor Won.
The Last Mail.
Bubbles and Troubles.
A Barking Dog.
Fresh Ham.
Indian Whoopee.
The Nut Factory.
Cubby's World Flight.
Cubby's Picnic.
The Gay Gaucho.
Galloping Fanny.
Croon Crazy.
Sinister Stuff.
Goode Knight.
How's Crops?
Cubby's Stratosphere Flight.
Mild Cargo.
Fiddling Fun.

Rental $1.25 Each

SOGLOW'S LITTLE KING CARTOONS

A Dizzy Day.
AM to PM.
On the Pan.
Sultan Pepper.
A Royal Good Time.
Art for Art's Sake.
Jest of Honor.
The Fatal Note.
Jolly Good Felons.
Pals.
Christmas Night.
In Darkest Africa.
Cactus Capers.

Rental $1.25 Each

OUT OF THE INKWELL

Vaudeville.
Koko Flies.
It's the Cats.
Eggcited.
Fishing.
Hot After It.
Stitch in Time.
The Sparring Partner.
Pay Day.
Hypnotist.
Backs Up.
Bubbles.
Runaway.
Thanksgiving.

Rental $1.25 Each

SONG CARTUNES

Those Dear Old Songs That Never Die. Tunes that young and old America love to sing. These pictures arranged with Bouncing Synchronized Ball indicating to audience how to join a Sing Fest with the picture.

Jingle Bells.
Summer Harmonies.
Jungle Town.
Old Kentucky Home.
London Bridge.
Darling Nellie Gray.
Oh Susannah.
Tramp-Tramp-Tramp.
Sweet Adeline.
Old Black Joe.
Has Anybody Here Seen Kelly?
Swanee River.
Come Take a Trip in My Airship.
Annie Laurie.
Goodbye My Lady Love.
Margie.
Comin' Thru the Rye.
Musical Inklings No. 1
Musical Inklings No. 2.

Rental $1.25 Each

TERRY TOON CARTOONS

Little Boy Blue.
The Pirate Ship.
Romeo and Juliet.
Beanstalk Jack.
Rip Van Winkle.
Grand Uproar.
Holland Days.
Just a Clown.
Pandora.
The Moth and the Spider.
Tom, Tom, the Piper's Son.
Wild West Daze.
The Mouse and the Lion.
The Owl and the Pussycat.
Barnyard Whoopee.
Streamlined Robinson Crusoe.
The Bee and the Butterfly.
Canine Comedy.

Rental $1.25 Each

KIKO THE KANGAROO CARTOONS

Big Fight.
Cleaned Out.
Foxy Fox.
Hail the King.
Red Hot Rhythm.
On the Scent.
Ostrich Troubles.
Danger on the Ice.
Bear Facts.
At the Bat.

Rental $1.25 Each

PUDDY THE PUP

Circus Capers.
Dog Wanted.
Down in the Deep.
Puddy Picks a Bone.
Farm Frolics.
Tricky Troubles.
Foolish Fables.
Scat Cat.
Home Wanted.

Rental $1.25 Each

"JUNGLE JINKS CARTOONS"

"Three Little Kittens".
"Toyland Adventure".
"Cat's Dilemma".
"Golden Goose".
"In a Cartoon Studio".
"Candy Town".

Rental $1.25 Each

BROWNIE BEAR CARTOONS

Brownie's Victory Garden.
Brownie Bucks the Jungle.
Galloping Hoofs.
Picnic Problems.
The Villain Pursues Her.
Robinhood Rides Again.

Rental $1.25 Each

DICK & LARRY CARTOONS

Jolly Fish.
Tight Rope Tricks.
Barnyard Bunk.
Puzzled Pals.
Happy Hoboes.
Fire! Fire!

Rental $1.25 Each

MISCELLANEOUS CARTOONS

Goose That Laid the Golden Eggs.
Molly Moo Cow & Robinson Crusoe.
Molly Moo Cow & Rip Van Winkle.
Molly Moo Cow & the Butterflies.
Molly Moo Cow & the Indians.
Toonerville Picnic.
Toonerville Trolley.
It's a Greek Life.
Cupid Gets His Man.
Trolley Ahoy.
A Waif's Welcome.
Bold King Cole.
Neptune's Nonsense.
Horse Laffs.
Desert Sheriff.
Trader Korn (Burlesque on big game hunting).
Jungle Holiday (Marty the Monk).
Terrible Toreador (A Silly Symphony version of a bull fight and its effects).
Springtime (A Silly Symphony).
Puzzle Graf.
Stone Age Stunts.
Tongue Twisters.
Tuning In.
Monkey Doodle (Simon the Monk).
Magazine Rack.
Mere Maids.
Slight Fantastics.
Sky Skipper.
Toodle-oo.
Spring Daze.
The Sheriff.
Jingles.

Rental $1.25 Each

Something New

CARTOON JAMBOREE

45 minutes of FUN AND LAUGHTER. A full 1600 foot reel of your favorites in cartoonland, including one in COLOR, rental for complete program only $5.00. Special rates by the week or month.

CARTOON JAMBOREE No. 1
Robinhood Jr.
Ostrich Troubles.
Bosko and the Pirates.
Picnic Problems.
Little Black Sambo (C)

CARTOON JAMBOREE No. 2
Run Sheep Run.
At the Bat.
Boy Meets Dog.
Wild West Daze.
Puss in Boots (C).

CARTOON JAMBOREE No. 3
Circus Days.
The Foxy Fox.
Good Scout.
Jack Frost.
Whittington's Cat (C).

CARTOON JAMBOREE No. 4
Cleaned Out.
A Little Bird Told Me.
Bee and Butterfly.
Mouse and Lion.
Rip Van Winkle (C).

CARTOON JAMBOREE No. 5
Ostrich Trouble.
Brownie's V. Garden.
The Circus.
Robinson Crusoe.
Jack Frost (C)

CARTOON JAMBOREE No. 6
The Big Fight.
Robinhood Rides Again.
What a Life.
Moth and Spider.
Baby Checkers (C).

NOTICE!

Don't book by numbers. The above are simply sample selections. Additions are being continually added, and the numbering system is continually changing. Just give us your dates, and say **"Book me for these dates with a series of cartoon Jamboree Reels."**

NOVELTIES

HOLLYWOOD PERSONALITIES

2 reels. A unique film showing many Hollywood stars in their work-a-day lives, narrated by Jimmy Fidler. Rental $3.00.

ONE-REEL NOVELTIES

Rental $1.50 Each

LYMAN H. HOWE'S HODGE PODGE SERIES

Speed Up.
Tidbits.
Money Makers of Manhattan.
Jungle Giants.
Vagabond Melodies.
Highlights of Travel.
The Wonder Trail.
All Around the Town.
Fury of the Storm.
Bubble Blowers.
Women's work.
Little Thrills.
Traffic.
Date Lines.
The Wonder City.
Down on the Farm.
Across America in 10 Minutes.
The Animal Fair.
Skipping About the Universe.
Out of the Ordinary.
Women of Many Lands.
Sawdust Sidelights.
Any Way to Get There.
Capers in Clay.
The Veldt.
The Prowlers.
Wonder Trail.
My Five Sons.

MISCELLANEOUS NOVELTY SUBJECTS

Your Life In in Your Hands (Palmistry).
Making the Funnies.
Take It or Leave It.
International Varieties.
Hollywood Magic.
Spilled Salt.
Strange Wedding Sign.
Superstitions.
Hollywood Highlights.
Thank our Lucky Stars.

THE "SEE" SERIES

SEE 1

Movie lions in Hollywood . . . performing penguins—they walk like men . . . Monkeys always exciting. Human projectiles—a daring feat that defies understanding. Airplane stunts. Parachuting out of a blimp. Bathing beauties. Surfboard riding. Speed boats trying to keep right side up. White sails at sunset. Then a Roman holiday of surf riding with torches to light the night.

SEE 2

A dog mother nurses 14 puppies . . . Modern Dianas keep fit with a lot of graceful exercise . . . bone benders . . . The high bicycle of grandfather's day. Motor bikes of today—speed kings climb steep hills . . . Oregon Indians fish in the ancient ways on their private preserves.

SEE 3

Racing turtles, jumping bullfrogs and tame porcupines . . . The little giant Panda from Tibet . . . Hippos weren't built to ride but a daredevil tries . . . The ballerinas tomorrow . . . A "land and water" mobile. Plane stunts using the top of an auto for a takeoff . . . an airplane without wings . . . Japanese chase evil spirits—out of the frying pan into the fire . . . A wire walker performs!

SEE 4

Army tanks in startling maneuvers . . . Fly-weight champions—little fellows with gloves . . . Mud baths in sport for college boys . . . A picnic on a monkey island . . . A big Chimp is almost human . . . Breaking up housekeeping with a motor-bike . . . Human cannon balls—first one daredevil is blown skyward, then two are exploded from the mouth of big Berthas.

SEE 5

Motorbikes do parlor tricks . . . Daring girls leap through flames . . . The Lion family is well behaved—a big fellow on a surfboard presents an unusual spectacle . . . Bears have a family life that's almost human . . . Jousting Knights ride again as in the Middle Ages . . . Angry seas on a wild rampage.

SEE 6

Tricks and antics that only a chimp could think up . . . A modern William Tell . . . Lumbering in giant forests . . . Transfer from motor boat to glider at high speed . . . Wings over California's snow-clad peaks . . . Formation flying in a setting of awe-inspiring beauty . . . Mt. Lassen from the sky . . . In the Philippines the camera reveals how active volcanoes misbehave.

Rental $1.50 Each

FUTTER CURIOSITIES SERIES

A series of 26 one-reelers, each containing about 8 unusual subjects. Rental $1.50 each.

"CLASSICS OF KNOWLEDGE"

No. 4—DEVOUT FOLK

French Canadians in Corpus Christi processions, shrines, etc. Huskies of the Frozen North, Esquimaux dogs and men on the trail with sledges—Spanish games of Hileah—Bees drinking—Ostrich Farm, showing incubator, eggs hatching, etc. Balsam lumber—shows wonderful strength—Indians spear-fishing for salmon in the Northwest. Salmon return home to spawn, leaping rivers, dams, etc.

Rental $1.50 Each

WORLD IN REVIEW ENTERTAINMENT SERIES

This group has been assembled from Pathe News material and edited for entertainment purposes. The quality of the material is comparable to that of our World in Review educational pictures. They are 1 reel each.

VARIETY REEL No. 1

(a) Everybody's Getting Lower.
(b) Sneezology (Robert Wildhack).
(c) Study Their Handwriting, Girls.

VARIETY REEL No. 2

(a) There's One Born Every Minute.
(b) Social Credits Dr. Rockwell).
(c) Hay-Hay (orchestra).

VARIETY REEL No. 3

(a) Ye Olde News Reel.
(b) On the Wings of the Wind.
(c) Fair and Foolish.

VARIETY REEL No. 4

(a) The Prince Business.
(b) Red Hot Hollywood (2 pianos).
(c) Crooks—British Walking Sticks.

VARIETY REEL No. 5

(a) Leaps and Glides.
(b) Noted Tenor Conducts Choir.
(c) Before Deuces Went Wild.

VARIETY REEL No. 6

(a) Broadway Farmer.
(b) Street That Jack Built.
(c) Fortune Castles (New York Mansions).

VARIETY REEL No. 8

(a) Victors of Michigan.
(b) A Day with State-Troopers.
(c) Right Sound on the Wrong Picture.

VARIETY REEL No. 9

(a) Men of Dartmouth.
(b) Mammy—Al Jolson—Leo Biegell—Farrell.
(c) Winter White.
(d) Spooks (spooky outlines).

VARIETY REEL No. 10

(a) 'Gator (Alligator farm in Florida).
(b) Rock Garden (Egyptian pyramids).
(c) Dr. Defoe of Denmark (storks).
(d) Beauty Spot (Adirondacks).

VARIETY REEL No. 11

(a) Perpetual News Reel.
(b) Things We Live With (glass decorations).
(c) Egyptian Derby (camel race).
(d) Wets Win in Egypt (camel water power).

VARIETY REEL No. 12

(a) Famous Wallendas.
(b) Carson Robinson "There's a Bridle Hangin' on the Wall."
(c) Latest Craze (ventriloquism).

VARIETY REEL No. 13

(a) First Motion Picture Camera.
(b) Bird Dog Training School.
(c) Flying Dutchmen.
(d) Dr. Rockwell, "The More Abundant Life."

VARIETY REEL No. 14

(a) Bygones.
(b) The Very Impossible (good trick photography).

VARIETY REEL No. 15

(a) Virgin Island (ideal vacation land).
(b) Sugar Cane Industry.
(c) World's Switchboard.
(d) Speed no bar to aerial telephony (airplane and fast train).

VARIETY REEL No. 16

(a) On the Up and Up (study in altitudes).
(b) Scaling Mt. Ixtlaccihuatl (Mexico).
(c) Aristocrat of Wines (France).

VARIETY REEL No. 17

(a) Frisian Islands (farming and fishing).
(b) Worlds Strangest Zoo (Florida).
(c) Raymond Knight (England).
(d) Fingers.

Rental $1.50 Each

VOICE OF HOLLYWOOD

ONE REEL EACH

Number 1. Rudy Vallee, Olive Borden, Lloyd Hamilton, Sally Blaine, Steppin Fetchit, Arthur Lake, Benny Rubin.

Number 3. Paul Whiteman, Reginald Denny, Mack Sennett, Anita Page, Bobby Vernon, Julia Faye.

Number 4. Harry Langdon, Lola Lane, Gus Edwards, Taylor Holmes, Armida.

Number 5. Bebe Daniels, Jack Mulhall, Ben Lyons, Marguerite Churchill, Sammy Cohen, James Gleason.

Number 6. Patsy Ruth Miller, Joe E. Brown, Eddie Quillan, Sally Blaine, Mickey Daniels, Norman Kerry.

Number 7. Mary Pickford, Will Hays, Duncan Sisters, Mack Sennett, Jack Mack Brown, Lillian Rich.

Number 8. Ben Turpin, Myrna Loy, Mickey McGuire, Al Cook, Alberta Vaughn.

Number 9. Ken Maynard, Bert Wheeler, Sally Starr, Tarzan, Wesley Barry, Marceline Day.

Number 10. Buster Keaton, Raquel Torres, Gwen Lee, Cliff Edwards, Robert Woolsey, Mary Carr, Meglin Kiddies.

Number 11. Natalie Moorhead, Bessy Love, Betty Boyd, Blanche Sweet, Creighton Hale, Ivan Lebediff.

Number 12. Leatrice Joy, Lloyd Hamilton, Dorothy Burgess, Walter Hiers, Donald Kerr.

Number 13. Ruth Roland, Georgie Stone, Davey Lee, Jack Benny, Charles Irwin, Estelle Taylor.

Number 14. Geo. K. Arthur, Barbara Stanwyck, Frank Fay, Louise Dresser, Don Bard, Eddie Lambert.

Rental $1.50 Each

ONE-REEL HOROSCOPE SUBJECTS

Made by Fitzpatrick

Each Horoscope reel gives the characters of people born in that particular month, and also shows several of the world's great who were born in that month. For example, the February horoscope shows Lincoln and Washington.

The following are the reels:

January
February
March
April
May
June
July
August
September
October
November
December

Rental $1.50 Each

MELODY PUZZLES

"Melody Puzzles" are played on the screen. We recommend that prizes be given to those who get the most solutions. With each booking of a melody puzzle we will supply 250 score cards, solutions, and instruction sheets. Additional score cards 15c per hundred. The following subjects are now ready:

Crime Doesn't Play.
Ain't Love Grand.
The Trial of Eileen Ballew.
The Secret of the Double Door.

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News Parade of 1941
1938 Peerless Review
News Thrills of 1942—Vol. 1
News Thrills of 1942—Vol. 2
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News Thrills of 1943—Vol. 1
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Melody on Parade. Young, Coty, White.
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Night of Romance. Novis, Leaf, Young.
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Popular Hits. Brokenshire, Coty, White.
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6 — MAJOR BOWES SUBJECTS — 6

ONE REEL EACH

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No. 2
No. 3
No. 4
No. 5
No. 6

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This talented pair of song writers, aided my Jack Osterman, the Pickens Sisters and others, joke their way through their better known songs.

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This talented young composer brings you some of his hit songs in a pretty setting. The Pickens Sisters, Peggy Healy and Jack Fulton sing your favorites in this reel.

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MINSTREL DAYS

SING AMERICA!

MANHATTAN LULLABY

TRAVELING THE ROAD

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Swinguet (Folk Dancing)

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Musical Moments.
Boom-Boom (Joe E. Brown)
Way Down South

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SOUNDIES

1. Comes the Revolution, Willie Howard.
2. K. P. Serenade, Hoosier Hot Shots.
3. Chool Song, King's Men.
4. Fiddle Polka, Lanny Ross.
5. I Am An American, Carolyn Marsh.
6. Good Morning, Mr. Zip Zip Zip, Tony Pastor.
7. Smiles, Tommy Reynolds.
8. Tying Apples to A Lilac Tree, Alvino Rey.
9. Don't Sit Under the Apple Tree, Johnny Messner.
10. McNamara's Band, Gus Van.
11. El Rancho Grande, Barry Wood.
12. You're A Lucky Fellow Mr. Smith, Mitchell Ayres.
13. Barnyard Bounce, Will Ayres.
14. Box Car Rhapsody, Borrah Minevitch.
15. Let Me Off Uptown, Gene Krupa.
16. Comin' Through the Rye, Charlie Spivak.
17. Hawaii Song of the Islands, Ray Kinney.
18. Minnie the Moocher, Cab Calloway.
19. Bugle Boogie.
20. Scheherezade.
21. Count Me In.
22. Thanks for the Boogie Ride.
23. You're A Grand Old Flag.
24. Basin Street Boogie.
25. A Feller Who Plays in the Band.
26. I'm Looking Out the Window
27. Turn Out the Lights.
28. Shine.
29. Blues in the Night.
30. Moonlight Becomes You.

Vine St. Blues.

You'll Have to Swing It.

Whistler and His Dog.

Way Down Yonder in New Orleans.

Pass the Biscuits, Mirandy.

Don't Be An Absentee.

Hail the United States Marines.

Don't Change Your Job.

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100 Ft. Reels

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2. Tropic Swingaroo
3. Say Si-Si
4. When You're Near Me.
5. Lydia
6. Love Songs of Renaldo
7. Playmates
8. Oh Susanna
9. The Golfer's Lament
10. Shadrach
11. Georgie Porgie
12. The Man Who Comes Around
13. Concertina Man.
14. The Sultans Charm
15. Blue Tahitian Waters
16. Papaya
17. Jim
18. You Are My Rhapsody
19. Never Water A Lily With Wine
20. Jungle Rhythm
21. Nothing But Romance
22. Always On The Bench
23. When A Gypsy Plays
24. Daddy's College Boy
25. A Wee Bit Of Scotch
26. At A Little Country Tavern
27. Mrs. Yankee Doodle
28. Peg Leg Pete, The Pirate
29. Love Never Happens To Me
30. Hi! Neighbor
31. Dancing In A Harem
32. The Right Kind Of Girl
33. Unsophisticated Sue
34. Boots and Saddles
35. At Your Service
36. Kisses To You
37. Doin The Argentine
38. Sweater And Sundaes
39. Hawaiian Dreams
40. Male Order
41. Delilah
42. You've Got Me Guessing
43. Thrill From Brazil
44. Samoa
45. There I Go
46. Their Nightmare
47. Flamenca
48. In A Show Of Our Own

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4. Big Fish
5. Viva Willie
6. A Day At The Races
7. El Rancho Grande

FUN AND MUSIC—No. 2

1. Tying Apples On The Lilac Tree
2. Bear Facts
3. London Bridge
4. Blue Bloods
5. Davey Jones Locker
6. Street Singers
7. Barnyard Bunk

FUN AND MUSIC—No. 3

1. Oh Susanna
2. Brownie's Victory Garden
3. Two Lame Ducks
4. Hey Hey Fever
5. Vine Street Blues
6. Sport Spellbinders

FUN AND MUSIC—No. 4

1. The Chool Song
2. Tom Tom the Piper's Son
3. Kid 'N Africa
4. The Golfers
5. Song of the Islands
6. Ski Revels

FUN AND MUSIC—No. 5

1. Davy Jones Locker
2. I Am An American
3. Buzzsaws and Dynamite
4. Jolly Fish
5. Blues in the Night
6. Football 1943
7. Good Morning Mr. Zip Zip Zip

FUN AND MUSIC—No. 6

1. K. P. Serenade
2. The Old House
3. Only the Brave
4. Melody Tour
5. Way Down Yonder in New Orleans
6. Goal Rush
7. McNamara's Band

SAMPLE PROGRAM No. 7

1. McNamara's Band
1. Brownie's Victory Garden
3. Football Thrills of 1943
4. Danger on Ice
5. Clyde Beatty's Animal Thrills
6. You're a Grand Old Flag

SAMPLE PROGRAM No. 8

1. A Fellow Who Plays in the Band
2. Hey Hey Fever
3. Your Horiscope
4. Ostrich Trouble
5. Variety Reel No. 7
6. Comin' Thru the Rye

SAMPLE PROGRAM No. 9

1. Good Morning, Mr. Zip Zip Zip
2. The Old Plantation
3. The Trap
4. The Big Fight (cartoon)
5. Personality and Pen
6. Trolley Trouble
7. Hawaii—Song of the Islands

SAMPLE PROGRAM No. 10

1. Oh Susanna
2. Fire Fire (cartoon)
3. Trailing Along (2 reels)
4. Variety No. 13
5. Sweet Adeline
6. Smiles

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THE RELIGIOUS CATALOGUE

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OF

16MM SOUND

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THE RELIGIOUS CATALOGUE

CATHOLIC INSTRUCTIONAL SUBJECTS

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7 reels. Filmed by permission of His Holiness Pope Pius XI. An authentic, beautiful and moving film. All-English talking, accompanied by sublime music.

"I enjoyed 'Cloistered' very much. It is a highly interesting picture, very entertaining, and should be seen to be appreciated."—Alfred E. Smith.

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3 reels. Shows intimately the life of these cloistered servants of God. Rental $5.00.

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9 reels. (With English titles.) A Viennese musical masterpiece, featuring the Vienna Choir Boys, accompanied by the Vienna Philharmonic Orchestra. Director, Max Neufeld; Photography, Hans Thayer; Musical Score Dr. Georg Gruber. Rental $17.50.

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3 reels. A cinematic classic direct from Ireland, that takes you step by step over the ground covered by the world's most beloved Saint, "The Apostle of Ireland." Rental $7.50.

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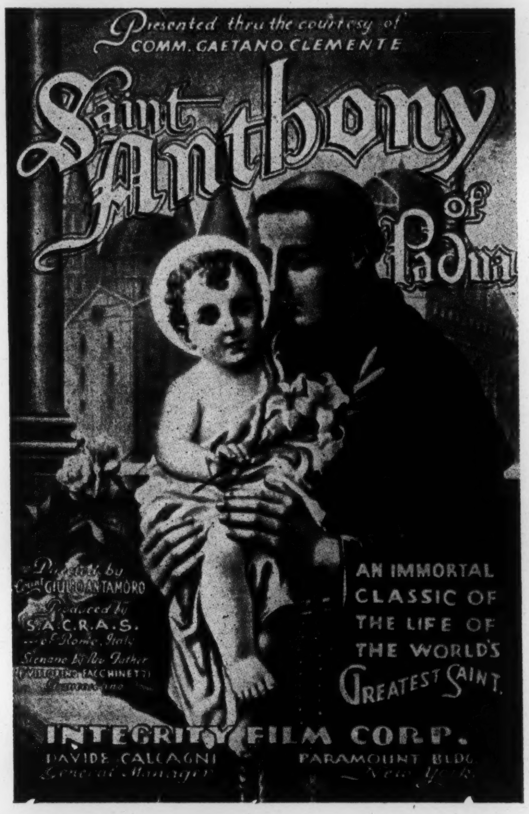
Presented thru the courtesy of
COMM. GAETANO CLEMENTE
Saint Anthony of Padua
Directed by Count GIULIO ANTAMORO
Produced by S.A.C.R.A.S. of Rome, Italy
Scenario by Rev. Father VITTORINO FACCHINETTI
AN IMMORTAL CLASSIC OF THE LIFE OF THE WORLD'S GREATEST SAINT.
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6. **Jesus Imprints His Sacred Face on the Veil of Veronica**
7. **Jesus Falls the Second Time**
8. **Jesus Consoles the Weeping Women**
9. **Jesus Falls the Third Time**
10. **Jesus Is Stripped of His Garments**
11. **Jesus Is Nailed to the Cross**
12. **Jesus Dies on the Cross**
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5 reels. Salient events in the Life of Christ, commencing with the Taxation and trip to Nazareth, and ending with the Crucifixion, Burial and Resurrection. Rental $12.50.

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8 reels. The Life of Christ, from the Manger to the Ascension Mount. Rental $12.50.

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7 reels. A complete Life of Christ, with background of choral and organ music. Rental $12.50.

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6 reels. This film may be used as a whole feature, or in two successive showings, divided as follows:

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Part 2. CROWN OF RIGHTEOUSNESS. Paul at Rome, where he writes his letters to Timothy. 3 reels.

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4 reels. Suitable for entire Lenten season. The empty tomb, the two Marys, and the grief-stricken Disciples. Rental $9.00. During Lent, $15.00.

FROM CREATION TO CALL OF SAMUEL

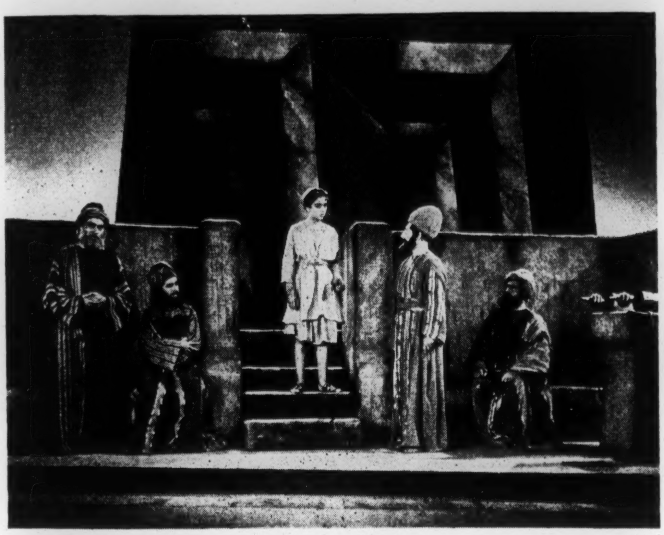
4 reels. This is the Old Testament portion of the feature, "Thine Is the Kingdom." Rental $8.00.

GOLGOTHA

8 reels. Mighty, stirring and forceful Life of Christ. (Has lip synchronization.) Historical and Biblical presentation of the sacred story of Jesus, depicting salient events, culminating in the triumph of the Resurrection. Rental: $25.00 before Lent; $30.00, first four weeks in Lent; $35.00, last two weeks in Lent.

JOURNEY TO JERUSALEM

9 reels. The film version of Maxwell Anderson's beautiful and deeply moving stage play. The eminent American dramatist and Pulitzer Prize Winner, Maxwell Anderson, has written an inspiring and highly dramatic story of the young Jesus. Rental $25.00.



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8 reels. A spectacular, all-talking picture, with music and a cast of 5,000, giving salient events in the life of Joseph, while in Egypt. Jewish dialogue, with English titles. Rental $15.00.

JESUS OF NAZARETH

6 reels. A fine visualization of the Life of Christ, synchronized with chorus and organ. Rental $7.50.

KINDLED FLAME (The)

3 reels. A dramatic presentation of the life of the early Christians, and how their faith in the New Gospel survived in the face martyrdom. Rental $9.00.

LIVING STORY OF THE BIBLE

7 reels. The picture shows such spectacular events as Sodom and Gomorrah, the Flood. Building of the Ark, Tower of Babel, as well as salient events in the Life of Christ and the Apostles. Rental $15.00.

LIFE OF ST. PAUL

6 reels. This film may be used as a whole, or in three successive showing, as follows:

Part 1. Road to Damascus (1 reel).

Part 2. Way of Salvation (3 reels). This episode takes place during the Apostle's visit to Phillippi, and shows cleansing of the maid, imprisonment of Paul and Silas, their delivery from prison, and conversation of the fear-stricken jailor.

Part 3. Faith Triumphant (2 reels). Story of the plot against the Apostle's life, trial before Felix and Agrippa, the triumph over his foes.

Rental, Complete subject, $15.00. Part 1, $3.00. Part 2, $6.00 Part 3, $6.00.

PASSION PLAY (The)

4 reels. A tabloid Life of Christ, which brings out main events from the Cradle to the Ascension. Rental $7.50. We also have a 3-reel version, rental $4.00.

SACRIFICE OF ISAAC

9 reels. An exceptionally fine presentation of the Old Testament story. Dialogue and music in Yiddish, but the English subtitles carry the story. Rental $15.00.

FOR THINE IS THE KINGDOM

6 reels. A beautiful Biblical subject linking up the promises of the Old Testament with the Life of Christ. Rental $12.50.

NATURAL COLOR SUBJECTS

A series of beautiful, all-talking pictures, in magnificent NATURAL COLORS, on the Life of Christ. Each episode is in 3 reels. Rental $10.00 each. In December and Lent $15.00.

A SAVIOUR IS BORN

The coming of the Saviour is the very foundation of our Christian civilization. The lovely picturization of this event should be seen by all who believe.

MY BELOVED SON

Story of John the Baptist, Sermon on the Mount, Christ's early miracles, and the teaching of the Lord's Prayer.

SUFFER LITTLE CHILDREN

Jesus' dealings with the Pharisees, His parables and miracles of healing. It concludes with a beautiful scene of Jesus and the children.

THE CATHEDRAL SUBJECTS

A CERTAIN NOBLEMAN

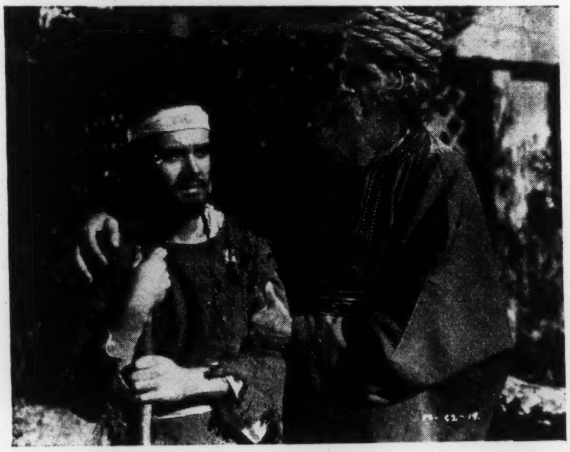
This film presents a careful portrayal of the customs and habits of the time of Jesus, especially those pertaining to the miracle of the healing of the nobleman's son. Running time 20 minutes. 2 reels. 16 mm, sound. Rental per day $6.00; week $15.00; month $45.00.

THE CHILD OF BETHLEHEM

This film gives a dignified and superb presentation of certain selected incident from the stories of the birth of Jesus and His boyhood up to twelve years of age, as recorded in the Gospels of St. Luke and St. Matthew. Running time 22 minutes. 2 reels, 16 mm. Rental per day $6.00; week $15.00; month $45.00. $12.00 during December.

THE STORY OF THE PRODIGAL SON

A story of human interest and emotion that carries a divine message of eternal importance. Not an interpretation, but the story itself as Jesus told it. A magnificent film for teaching. Especially recommended for young people and adults. **SPECIFY THE CATHEDRAL VERSION.** Running time 22 minutes. 2 reels. 16 mm, sound. Rental per day $6.00; week $15.00; month $45.00 .



NO GREATER POWER

This is the story of Zaccheus as recorded in St. Luke IX:1-10. The film shows him as an impoverished potter who takes advantage of circumstances to eventually gain the exalted position of tax collector in Jericho. He uses his wealth and power to further his own selfish ends, but everything changes when he comes face to face with Jesus. Running time 24 minutes. 2 reels. 16 mm, sound. Rental per day $6.00; week $15.00; month $45.00.

WHO IS MY NEIGHBOR

A story of a Samaritan family and their unusual experience in Jerusalem. True to the events in the parable of the Good Samaritan, as Jesus told it, the story reaches its climax on the road from Jerusalem to Jericho. Running time 30 minutes. 16mm sound. Rental per day $8.00; week $20.00; month $60.00.

JOURNEY INTO FAITH

Based on the story of the two men from Emmaus. St. Luke XXIV:13-33. Cleopas loses a profitable business of supplying sheep to the Temple in Jerusalem because he refuses to be a witness against the Master. He joins his friend Joel in organizing a movement that will overthrow the Roman Authority and the evils of the Religious system. Plans are interrupted by news that Jesus has entered the city as the Messiah. They hurry to warn Him only to arrive too late. On their journey home they come face to face with the risen Christ but recognize Him only at the breaking of bread before the evening meal. Running time 34 minutes. 16 mm, sound. Rental per day $8.00; week $20.00; month $60.00. During Lent, $14.00 per day; week 35.00; month $105.00.

TWO-REEL BIBLICAL SUBJECTS

FISHERS OF MEN

A very beautiful and impressive dealing with the call of the Disciples. Rental 6.00.

TABLOID—FROM EDEN TO CALVARY (3 Reels)

(Listed also as two 1-reelers, "Life of Moses" and "Christ's Sacrifice at Calvary.") By popular demand we make available a shorter version of "From Eden to Calvary," which is described under Religious Features. This short version contains all of the best scenes from the longer version. Rental $5.00.

GALILEE

A tabloid story of the Life of Jesus, being the last two reels of the feature, "For Thine is the Kingdom." Rental $4.00.

BARABBAS

Founded on the story by Canon S. N. Sedgwick, in which Barabbas and other robbers are seen in prison. After his release, Barabbas finds his way to Calvary, where he meets with those who explain to him the meaning of the Cross. Theme Texts—Galatians ii, 20; John iii, 16. Rental $5.00.

THE BIBLE IN PICTURES

This is a series of two-reel subjects, giving in chronological order the salient events of biblical history.

The first of these subjects is now ready, which tells the story of early bible history, including the "Noah episode". Other episodes will follow in quick succession. The rental is $5.00 per episode.

ONE-REEL BIBLICAL SUBJECTS

OLD TESTAMENT

Creation
Cain and Abel
Noah and the Ark
The Deluge
Abraham
The Migration
Abraham and Lot
Rescue of Lot
Issac the Boy
Ishmael
Sacrifice of Isaac
Isaac and Rebecca
Jacob and Rachel
Return of Jacob

Rental $1.50 Each

MISCELLANEOUS ONE-REEL BIBLICALS

Christ's Sacrifice At Calvary. From Eden to Calvary. Rental $3.00.

The Lord's Prayer. Running time, 3 minutes. Rental 75c.

EXTRA - BIBLICAL RELIGIOUS SUBJECTS

(Including Missionary and Temperance Subjects)

SPECIAL FEATURES

THE MAN AT THE GATE

Starring
WILFRED LAWSON of "Pastor Hall" Fame
with

MARY JERROLD	**MARY FOLEY**
WILLIAM FRESHMAN	**GEORGE FOLEY**
KATHLEEN O'REGAN	**RUTH**
HUBERT HARBEN	**REV. TRANT**
CHARLES ROLFE	**MR. PORTIBEL**
TREFOR JONES	**MR. MONEYPENNY**

Never before in all Christian History has a more touching and beautiful portrayal of the influence of Christianity on the human heart been recorded in motion pictures.

CHICAGO CHURCH FEDERATION
Rev. Howard A. Vernon, President
77 West Washington Street, Chicago

I have just witnessed the moving picture, "The Man at the Gate." It leaves me deeply impressed and profoundly moved. In this chaotic world when clouds and darkness are round us, and many people are groping after God, this picture will bring courage and confidence. It is a vivid portrayal of the hazardous life of the sea, and the indiscriminate tragedies of war, of the loss of faith, and finally the regaining of faith.

It is the kind of message this war-torn world needs to hear, and I heartily recommend it to the churches of Chicago.

Very sincerely,
REV. HOWARD A. VERNON

Masterfully executed with character artists, completely flawless in their portrayal of every type of human emotion, in a traditional but modern setting. The perfect balance of the spiritual with the material has made a truly great picture story illustrating the amazing power of faith.

Especially appealing to those with loved ones in the armed services. Rental $17.50.

LAST DAYS OF POMPEII (The)

10 reels (RKO Production). Lavish, stupendous in its effects—religious and dramatic in its treatment. The great cast includes Preston Foster, Alan Hale, Basil Rathbone, John Wood, Louis Calhern, David Holt, Dorothy Wilson and Wyrley Birch. One of the outstanding scenes, heart-stirring in its appeal, is the touching Road to Calvary, when the cruel mob forces Jesus to carry His cross through the streets of Jerusalem, His faithful followers and His loved ones near Him in this cruel hour. **This picture must not be confused with the old silent version with sounds added, which has now been withdrawn from our library.** Rental $20.00. In Series $17.50. **Approval of location must be procured.** Send for application blank.

THE ARMY CHAPLAIN

It tells in stirring detail the story of these brave quartermasters of the spirit—their interesting life in the chaplain school, their varied and humane responsibilities in the training camp, their important duties and great sacrifice on the fighting front. It is an absorbing story ,excitingly told—one of the most soul-gripping pictures ever filmed. Rental $3.00.

THE POWER OF GOD

6 reels. Tells in the form of a gripping modern story what Christianity is, what it does to the individual, and what the individual should do with it. The characters might be people next door to you. They enact a true-to-life story that has happened in thousands of villages, towns and cities throughout America. Maybe it has happened to you. Filled with emotional contrasts, "The Power of God" is a Christian sound-film which you will want to see.

"It is a wonderful picture! I believe that, wherever exhibited, it will well serve its purpose of encouraging more personal Christian testimony. The picture must be seen to be appreciated."—John H. C. Fritz.

Rental $20.00

BEYOND OUR HORIZON

4 reels. A gentle country minister of far-off Norway found through deep and bitter experience that God's will must be done, and we must await His own good time to answer prayer. Rental $12.00.

CIVILIZATION

7 reels. A dynamic blast on the futility and horrors of war, from the Christian angle. Rental $12.50.

DREAM OF MY PEOPLE

7 reels. A picture of the new Palestine, combining history, religion and music, including the singing of the late lamented Cantor Joseph Rosenblatt. Rental $15.00.

FLAME OF THE PACIFIC

3 reels. The influence of Pele, goddess of flame, on the customs and religious beliefs of natives of the South Seas. Rental $4.50.

John Steinbeck's

THE FORGOTTEN VILLAGE

The Forgotten Village is an outstanding film which was seen by thousands during a long run in New York and later showings in other cities throughout the country.

CHURCH PEOPLE CANNOT VIEW THIS PICTURE WITHOUT FEELING ITS CHALLENGE TO CHRISTIAN MISSIONS.

"This film makes a most impressive missionary appeal. It stands not alone for an Indian village in Mexico, not for the 16,000,000 Indians of Latin America, but in reality for the multitudes of under-privileged people throughout the world whose lives are steeped in tradition, superstition and ignorance."—Dr. Emory Ross, General Secretary of the Foreign Missions Conference of North America.

Showing time 60 minutes. 16mm Sound.

Endorsed for Church use by: Baptist Literature Bureau, Foreign Missions Conference of North America, Methodist Board of Missions, Harman Foundation, Missionary Education Movement, Presbyterian Board of Foreign Missions, Religious Film Association, Inc.

Special Rental to Churches $12.00

THE HOLY LAND (From Abraham to Allenby)

In 4 parts. The most comprehensive film ever made for students of Bible history.

Part 1. Abraham to Moses (2 reels.)
Part 2. Jordan Crossed to Exile (2 reels).
Part 3. The Return to Crucifixion (2 reels).
Part 4. Roman Rule to Allenby (2 reels).

Each Part Rents at $5.00

LIQUOR AS A DOCTOR SEES IT

2 reels. A discussion of the liquor problem from the scientific angle, with a strong plea for sobriety. Rental $5.00.

ORPHAN BOY OF VIENNA

9 reels. A Viennese musical masterpiece featuring the famous Vienna Boys' Choir, with the Vienna Philharmonic Orchestra. German dialogue. (English titles throughout.) Rental $17.50.

STARLIGHT NIGHT

5 reels. Especially appropriate for the Christmas season, as well as the month of December. An authentic picturization of the events leading up to the writing of the immortal lyrics of the hymn, "Silent Night, Holy Night." Rental $10.00. During month of December, $15.00.

WILLIAM TINDALE

5 reels. A beautiful film biography of the great translator of the New Testament into English, showing the hardships he gladly underwent in the name of Christ. Rental $10.00.

TWO-REEL FEATURETTES

MASTERSHIP

The film shows the effect of the preaching of Lax of Poplar upon a family, and especially on the son, George, who determines to try out the Mastership of Christ in his own life. Theme Text—Matthew xxiii, 10. Rental $5.00.

THE WORLD WE WANT TO LIVE IN

Sponsored by the National Conference of Christians and Jews. This film dramatically presents a message to every American to preserve national unity by combating religious and racial intolerance. Rental rate $1.50. During Lent $3.00.

RELIGION AND THE BRITISH PEOPLE

Shows the contribution of the principal creeds in Britain—Protestant, Catholic and Jewish—to social and democratic life, with scenes inside the Great Synagogue, and emphasis on the work of Missions in large cities. Rental $2.50.

SPRINGTIME IN THE HOLYLAND

A beautiful **natural color** film. Your audience when viewing this subject will virtually live in the modern Holyland. Rental $7.50. During December or Lent $15.00.

CHRISTIANITY

Based on the Oberammergau spectacle, the Village World-Famed for its Passion Play performances given every ten years. The picture shows the Oberammergau players at work and at play. **It also shows actual scenes from the Passion Play enacted on the Oberammergau stage.** Rental $4.00.

ADESTE FIDELES

"Adeste Fideles" is the story of Christmas in the England of 1940. Service charge $1.00.

EVANGELISTIC SUBJECTS

Produced by

SCRIPTURES VISUALIZED FILMS

(Pictures marked * teach the pre-millennium, second coming of Christ.)

FREELY JUSTIFIED

An exposition of Acts 13:38, 39. Dr. H. A. Ironside, prominent Bible teacher and pastor of Moody Memorial Church, Chicago. 12 min. Rental $2.00. Purchase $25.00.

UNDER MARCHING ORDERS

An urgent reminder of Christ's command to world evangelization, by Dr. H. A. Ironside. 12 min. Rental $2.00. Purchase $25.00.

YOU CAN'T EARN IT

A sermonette by Dr. Walter L. Wilson emphasizing the freeness of God's salvation. 12 min. Rental $2.00. Purchase $25.00.

GO YE

A great missionary leader's earnest appeal to send the gospel to every nation, by Dr. Oswald J. Smith, pastor of the People's Church, Toronto, Canada. 19 min. Rental $3.25. Purchase $42.50.

THE BLESSED HOPE

Sermon by Dr. W. B. Riley, founder and president of Northwestern Theological Seminary and Bible Training School, Minneapolis, Minnesota. 22 min. Rental $3.25. Purchase $42.50.

SOUL WINNING EXPERIENCES

Three of America's outstanding preachers, Dr. H. A. Ironside, Dr. Walter L. Wilson and Dr. William B. Riley, relate personal experiences in soul-winning. 16 min. Rental $3.25. Purchase $40.00.

FIVE MINUTES TO LIVE

"If you had only five minutes to live, what would you say to those around you?" This is the question that Dr. Oswald J. Smith, Dr. W. B. Riley, Dr. Walter L. Wilson and Dr. H. A. Ironside answer in this film. Introduction by Dr. Bob Jones, Jr. 22 min. Rental $3.75. Purchase $50.00.

FRIENDLY CHATS ON SOUL-WINNING

By Dr. Walter L. Wilson. In a series of six synchronous sound pictures, one of America's foremost soul-winners offers practical solutions to many problems encountered in personal work. Discussions are in dialogue form, and a variety of settings is used throughout the series.

OPENING THE CONVERSATION

1. The solution to a very difficult problem in personal work. 12 min. Rental $2.00. Purchase $25.00.

DIAGNOSING THE CASE

2. This film emphasizes the necessity of proper diagnosis of the sinner's case before prescribing the remedy. 12 min. Rental $2.00. Purchase $25.00.

DEALING WITH DIFFERENT TYPES—Part 1

3. The third and fourth films in this series are devoted to methods of dealing with different tpes of individuals. 12 min. Rental $2.00. Purchase $25.00.

DEALING WITH DIFFERENT TYPES—Part 2

4. A continuation of film described immediately above. 12 min. Rental $2.00. Purchase $25.00.

USING GOD'S WORD EFFECTIVELY

5. A recounting of novel personal experiences which vividly portray the importance of being able to find the exact Bible reference needed to solve any given problem. 12 min. Rental $2.00. Purchase $25.00.

MAKING ILLUSTRATIONS COUNT

6. A demonstration of the effective use of illustrations by a master in the art. 12 min. Rental $2.00. Purchase $25.00.

CHOOSING RATHER

In this film Herman Voss, brilliant pianist in the U. S. Navy, plays original variations of a well-known hymn; Helen McAlerney, a converted "blues" singer, sings a favorite gospel song; and Captain Rowland, young cornetist of the Salvation Army, plays a difficult cornet classic and a best-loved hymn. Each gives the testimony of his salvation in Christ. Johnny Catalino, also a trophy of God's redeeming grace and a former prize-fighter of note, tells the story of his life: "From Prize Ring to Pulpit." 30 min. Rental $5.00. Purchase $75.00.

ALL FOR JESUS

A testimonial film of the **Choosing Rather** type. Participants include Bill Burcaw, converted opera singer; Iola Darzes, dramatic reader; and Harlen McGinnis, vocal and instrumental soloist. 30 min. Rental $4.00. Purchase $60.00.

MEN IN UNIFORM

In this film two sailors play, sing and testify to the Lord's glory. 18 min. Rental $3.00. Purchase $37.50.

"THE PRODIGAL SON"

The story of Luke 15 graphically pictured in twentieth century life. 35 min. Rental per day $10.00. Purchase $150.00.

MUSICAL MOMENTS

With Harlen McGinnis. Melodies of the gospel, sung and played by Harlen McGinnis, beloved radio musician. 9 min. Rental $1.75. Purchase $20.00.

MUSICAL MOMENTS

With Sol Hoopii. An interpretation of well-known gospel hymns by Hawaiian-born Sol Hoopii. 16 min. Rental $2.50. Purchase $32.50.

THE MAN WHO FORGOT GOD

John Wilson is the central figure in this dramatic production. Saved as a boy, he dedicates his life to the Lord in early youth and "sets his face like a flint" toward the foreign mission field. 30 min. Rental $10.00. Purchase $150.00.

HAPPY TIME FOR BOYS AND GIRLS

No. 1. Seven features combine to make a delightfully attractive children's picture. Singing, drawing, Bible memorization, hobby demonstration, lesson, story, and a trip to the zoo are presented in varied, lively fashion and with simple Scriptural application. 45 min. Rental $7.50. Purchase $110.00.

HAPPY TIME FOR BOYS AND GIRLS

No. 2. Children's picture with the same features as in No. 1 of the series, but every scene different. 45 min. Rental $7.50. Purchase $110.00.

SHINING FOR JESUS

A Children's film in which "Uncle" Walter Wilson answers the question "What makes a flashlight shine?" and Bevely Shea sings two outstanding song favorites. 12 min. Rental $2.00. Purchase $25.00.

SONGS AND STORIES FOR CHILDREN

A companion picture to **Shining for Jesus.** 19 min. Rental $3.00. Outright purchase $37.50.

THE LOST SHEEP

The parable of the lost sheep visualized. 10 min. Rental $2.25. Purchase $30.00.

GOSPEL DYNAMITE

Sermonette in rhyme, accompanied by appropriate music and illustrated by contour drawings. 13 min. Rental $2.00. Purchase $25.00.

THE HOUSE THAT GOD BUILT

This fully animated cartoon sound film vividly teaches what happened to the marvelous being God created in His own image. 12 min. Rental $2.25. Purchase $30.00.

FOUND WANTING

Read the "handwriting on the wall" against a modern Belshazzar, "weighed in the balances and found wanting." 12 min. Rental $2.75. Purchase $35.00.

BACKYARD EXPLORATIONS

First in the **Nature's Wonderland** series, this animated film clearly teaches two outstanding gospel truths—the new birth and the resurrection—as they are so beautifully illustrated in the life story of a moth. 13 min. Rental $2.75. Purchase $35.00.

THE DOOR TO HEAVEN

Setting forth the Scriptural teaching that Heaven is entered by "one door and only one," this film, in a simple, convincing manner, upsets all man's hope of entering by some other way. 12 min. Rental $2.25. Purchase $30.00.

CITY STREETS

An intimate glimpse of life as we find it along the teeming street lanes of America's populous cities. 12 min. Rental $2.75. Purchase $35.00.

NOW IS THE TIME

Full of action and interest, this production teaches men to "number their days." 11 min. Rental $2.00. Purchase $25.00.

THIS AMAZING UNIVERSE

Second in the **Nature's Wonderland** series, this animated film, by skillful art work and animation camera technique, makes more comprehensible the wonders of this amazing universe of which we are so small a part. 13 min. Rental $2.75. Purchase $35.00.

THE SINGING HEART

Pictorial demonstration of the wickedness of the human heart and the power of the blood of Christ to cleanse and make it pure. 10 min. Rental $1.75. Purchase $18.00.

TEN-LINK CHAIN

An object lesson by Rev. Joseph S. Otteson, based on James 2:10: "For whosoever shall keep the whole law and yet offend in one point, he is guilty of all." 11 min. Rental $1.50. Purchase $15.00.

THE WAYWARD WORLD

A gripping disclosure of the wretched state into which man has fallen through his willful departure from God. 12 min. Rental $2.00. Purchase $25.00.

GOOD TIDINGS

An unusual picture-exposition of Isaiah 52:7: "How beautiful upon the mountains are the feet of Him that bringeth good tidings . . ." 11 min. Rental $2.00. Purchase $25.00.

LAW AND GRACE

A picture-commentary on God's purpose in giving the Law to man, and an illuminating review of the wonders of His grace in redeeming man from the curse of the Law. 12 min. Rental $2.25. Purchase $30.00.

THE RAPTURE

The most momentous event in all history lies not far in the future, an event sobering and inescapable; calamitous for the unsaved, glorious for the redeemed. Witness in vivid portrayal on the screen the startling changes this event will bring to pass in the lives of all men everywhere. 12 min. Rental $2.75. Purchase $35.00.

HIS BEQUEST

A remarkable revelation of the believer's inheritance in Christ as recorded in the 13th to the 17th chapters of John. 550 ft., 16 min. Rental $3.50. Purchase $45.00.

FISHERS OF MEN

Based on Matthew 4:19, "Follow Me, and I will make you fishers of men," this picture urges Christians to surrender all to Christ and follow Him into a life of fruitful soul-winning. 12 min. Rental $2.25. Purchase $30.00.

CHILDREN AT THE ZOO

No. 1. 1 reel. Rental $2.00. Purchase $25.00.
No. 2. 1 reel. Rental $2.00. Purchase $25.00.

HAPPY TIMES FOR BOYS AND GIRLS

No. 3. 3 reels. Rental $7.50. Sales price $110.00.

DEAR DIARY

This film is an hour-by-hour, minute-by-minute account of one day's activities in the life of schoolgirl Jane Jones. 13 min. Rental $2.75. Purchase $35.00.

AUTOBIOGRAPHY OF A TRACT

A live-action production in which a gospel tract relates its life story, and the adventures that befall it in the care and keeping of its Christian owner. 15 min. Rental $2.75. Purchase $35.00.

PURSUIT OF HAPPINESS

Exposing the futility of man's search for happiness apart from Christ. 12 min. Rental $2.25. Purchase $30.00.

STORY OF A FOUNTAIN PEN

A fascinating parable describing the similarities between the Christian and so common an object as the fountain pen. 16 min. Rental $2.75. Purchase $35.00.

LIFE OF MOSES

A biography of Moses from infancy to old age. 15 min. Rental per day $3.00. Outright purchase $37.50.

MUSICAL MOMENTS

With the Ramseyers. 2 reels. Rental $2.75. Purchase Price $35.00.

LONG TERM RENTALS

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7 days	2½ times daily rate
2 weeks	4 times daily rate
1 month	7 times daily rate

BRITISH CATHEDRALS

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Note: Inspiring for Church programs. Educational for Schools. Rental $1.50 each.

RELIGIUOS SUBJECTS

(In 16mm Silent)

RELIGIOUS FEATURES

AVE MARIA

5 reels. Rental $5.00.

CHRISTUS OR THE LIFE OF OUR SAVIOUR

7 reels. Birth, Martyrdom, Death and Resurrection of Our Lord. Rental $7.00.

COMPLETE PASSION PLAY

7 reels. Rental $7.00.

THE CONQUERING CHRIST

6 reels. A beautiful film showing how Christ conquers and will ultimately conquer. Rental $6.00.

CROWN OF THORNS

8 reels. Rental $8.00.

DAVID LIVINGSTONE

6 reels. The story of a life that was dedicated to the service of a downtrodden race makes a powerful and inspiring picture. Rental $8.00.

THE ETERNAL HOPE

8 reels. A mighty blast against atheism. Rental $8.00.

FABIOLA

8 reels. Part 1—4 reels. Part 2—4 reels. Rental $8.00.

FALL OF JERUSALEM

6 reels. Spectacular. Rental $6.00.

FROM EDEN TO CALVARY

5 reels. An exceptionally fine biblical story illustrating the salient events from the Garden of Eden to Calvary Mount. Rental $7.50.

FROM DARKNESS TO DAWN

4 reels. A fine presentation of the Biblical story of The Creation, The Fall, The Expulsion from Eden, and the story of Cain and Abel. It has also some fine scenes from the Abraham Story, especially emphasizing his temptations. The story ends with the prophesy of the coming of God through the entrance into the world of Jesus Christ. Rental $5.00.

I BELIEVE

6 reels. An indictment of religious infidelity. Rental $6.00.

LIFE OF CHRIST

7 reels. Rental $7.00.

MARTIN LUTHER

His life and times. 8 reels. A comprehensive biography of the great reformer. Rental $15.00.

THE MAN NOBODY KNOWS

6 reels. Edited and titled by Bruce Barton. This great feature, photographed and produced with scrupulous accuracy in Palestine and other parts of the Holy Land, is a record of the life of Jesus from the cradle to the cross. Rental $9.00.

MESSENGER OF THE BLESSED VIRGIN

9 reels. Rental $9.00.

MIRACLE OF LOURDES (THE)

6 reels. A fine Catholic instructional film, showing Lourdes as it was in pre-war France. Linked up with it is the story of its fame. Rental $6.00.

NOT ONE TO SPARE

4 reels. "Not One to Spare" deals with the closeness of family ties. Rental $4.50.

PADRE SAHIB

4 reels. A drama of life in the Indian Punjab. Rental $4.00.

THE PASSION PLAY

4 reels. The old, old story well told. Rental $4.00.

PATH OF LOVE

5 reels. Dramatic and gripping presentation of the life of St. Francis of Assisi. Rental $5.00.

ST. ANTHONY OF PADUA

9 reels. Rental $9.00.

SHEPHERD OF THE SEVEN HILLS

5 reels. The complete history of the Church in Rome, with many incidents taking place in the Vatican itself. The Pope and well-known American prelates in several intimate close-ups. Rental $5.00.

SON OF MAN (THE)

8 reels. This is probably the most complete Life of Christ ever put on films. For convenience, it is divided into three parts, as follows:

Part 1. "THE DIVINE CHILD"—3 reels. The story of the Angel's Message, the Visit of the Wise Men from the East, and the Christ Child, including His Visit to the Temple. Rental $3.00.

Part 2. "CHRIST'S MIRACLES AND TEACHINGS"—2 reels, including such episodes as the Changing of Water to Wine, the Raising of Jairus' Daughter, and the Walking on the Water. Rental $2.00.

Part 3. "CHRIST ACCLAIMED AND REJECTED"—3 reels. The story of the Triumphant Entry, The Passion, The Crucifixion, The Resurrection, and The Ascension of Christ. Rental $4.00.

WHEN DAWN CAME (Power of Faith)

5 reels. The influence of Father Farrell and Mary, the beautiful little blind girl, who prays fervently each day for the restoration of her sight, helps to uncover the intrinsic soundness of a degenerate surgeon and the day when, seeing life in a saner vein, it suddenly occurs to the doctor that Mary's vision might be restored by an operation. Of course, the operation proves successful and Brandon discovers that only by faith in the Almighty can His true blessing be enjoyed. Rental $5.00.

3-REEL RELIGIOUS FEATURETTES

AFRICA JOINS THE WORLD

Reel 1—WHAT AFRICA IS.
Reel 2—HOW AFRICA LIVES.
Reel 3—FROM FETISHES TO FAITH.
Rental $1.25 Per Reel. $3.75 for the 3 Reels.

CHILDREN GROW UP

This is the tragic story of Margaret Stevens, the cruelly repressed daughter of a nagging, shrewish woman. Rental $4.00.

THE HOLY GRAIL

3 reels. Based on the King Arthur Legends. Rental $3.00.

JOAN OF ARC

3 reels. Rental $3.00.

THE JOURNEY OF THE ISRAELITES

This featurette, all photographed and produced in Egypt, Arabia and Palestine, was secured by outfitting a caravan and retracing the route of Moses from the Land of the Pharaohs to the Promised Land. Rental $4.50.

THE LIGHT OF FAITH

3 reels. Lon Chaney. Rental $3.00.

THE LORD HELPS THOSE—Who Help Each Other

A motion picture of the Nova Scotia Cooperative Movement and the closely related Adult Education Movement, is based in part on the book. "The Lord Helps Those—" by Bertram B. Fowler. Rental $4.50.

LOST AND FOUND

Vividily illustrating the old saying, "A man is known by the company he keeps." Rental $4.00.

NGONO AND HER PEOPLE

A thrilling story of a convert to Christianity in the French Cameroons. Rental $3.75.

PASSION PLAY (THE)

A tabloid version of the Passion and Crucifixion of Christ. Rental $3.00.

STORY OF BAMBA (THE)

Bamba, an African boy of the Bakongo tribe, and his sacrifice for Jesus Christ. Rental $3.75.

WHAT A MISSIONARY DOES IN AFRICA

This picture presents authentic scenes in the life of a missionary in the Belgian Congo. It commences with the young missionary landing, being greeted by the older missionaries and the natives. Then it follows with a series of excellent scenes, showing the life work of a missionary. Rental $3.75.

2-REEL RELIGIOUS FEATURETTES

CHILDREN OF AFRICA

Reel 1. Atmospheric scenes around a village, children bathing, helping mother with the cooking, girls helping make pottery, boys helping father build a house of sticks; village drummer and the weaver; a swimming race and a hunting trip.

Reel 2. Boys and girls in separate African dancing games; caring for the younger children, and attending the village school, where they "learn by doing." Older boys with their dug-out canoe, younger boys swimming. Rental $3.00.

CHINA'S GIFT TO THE WEST

This is a brief story of some of the things the Western World owes to Chinese culture and ingenuity. Rental $3.00.

CHRIST'S SACRIFICE AT CALVARY

2 reels. Rental $2.50.

DAY IN AN AFRICAN VILLAGE (A)

Reel 1—The Morning. The village rises with the sun and goes about its work; burning off jungle growth for a new garden, cultivating the community garden, the complicated process followed by the women in preparing and cooking manoic, the staple food (shown in detail), the weaving of mats and fish traps, and the spearing of fish by the men.

Reel 2—The Afternoon. The process of gathering fruit of the oil palm tree and extracting oil from the fruit, is shown in detail. The serving of the African's one meal of the day, contacts with the outside world and their effects, together with scenes of a primitive dance comprise the remainder of the reel. Rental $3.00.

EDUCATION OF STEVE SMITH (THE)

Steve, the brilliant student at Weston College, is so absorbed in furthering his own career, he overlooks the opportunities of friendly cooperation and service offered by college life. His lack of consideration for others finally prompts his fiancee to break their engagement, and Steve, unable to realize how much he is at fault, entirely misconstrues her action. Then through the wise advice of a professor who is interested in both young people. Steve's whole attitude toward his classmates and friends changes, whereupon the engagement is renewed. Rental $2.50.

FORGIVE US OUR DEBTS

Jesus is telling His followers this story: A debtor appears before his King, and is unable to pay his debts. The King relents and forgives him. Later the debtor is seen in the home of a man who owes him a tiny sum. He threatens and finally drags the man to prison, despite the pleas of the poor man and his wife. Once more the rich debtor appears before the King, but this time the ruler has heard of his injustice, and casts him, too, into prison, where his poor debtor comforts him, and washes the wounds left by the whip of the floggers. Rental $3.00.

CHRISTIANITY

2 reels. Oberammergau spectacle. The village world-famed for its Passion Play performance given every ten years. Rental $2.50.

GOOD NEWS

This picture deals with missionary work being accomplished in a number of foreign fields. Rental $2.00.

LIFE OF MOSES

2 reels. Rental $3.00.

OUR CHILDREN'S MONEY

The father of a family returns from an extended business trip to find his wife and children have slipped into slovenly financial habits. In order to give them a sense of the value of money, he establishes a budget system for his wife and puts the children on an allowance. The picture shows the reactions of the children to this new arrangement and their gradual appreciation of the rewards of carefully planned saving and spending. Rental $3.00.

PASSION OF CHRIST

Rental $2.00.

THE PASSION PLAY
Rental $2.00.

PILGRIMAGE
A motion picture record of the sacred journey taken by thousands of Hindus each year to the temples at the sources of the Ganges River. Rental $3.00.

SACRIFICE OF THE MASS
Rental $2.00.

SONG AFTER SORROW
Produced by the 1938 African Motion Picture Project. This film portrays in interesting fashion the magnificent work being carried on at the Bibanga Leper Camp in Belgian Congo. Rental $3.00.

LITTLE JIMMY'S PRAYER
Rental $2.00.

UNTO THE HILLS (2 Reels)
Jerry, the moonshiner's son, has grown up in a remote section of the Southern mountains where living conditions are still in a primitive stage. The story of what he did to help his community is thrilling. Rental $2.50.

A CERTAIN NOBLEMAN
A Cathedral film—See description in Sound Dept. Rental $4.50.

GRAPES OF GLADNESS
2 reels, in colors. This film features the practical suggestion for migrant relief offered in the recent book, "Grapes of Gladness," by M. V. Hartranft. Rental $2.50.

TRAIL OF THE MIGRANTS (THE)
2 reels. A sequel to the "Grapes of Wrath," also in color, except a few scenes, which better portray the situation in black and white. This picture features a cross-section of the migrant situation from the squatter camps to the oldest and newest federal camp near Visalia. Rental $2.50.

A ROYAL PRINCE
A tabloid of Christ. Rental $5.00.

HOPE BEYOND THE GRAVE
Beautifully hand colored. This is the Biblical story of Elisha and the Shunamite. Rental $3.00. 2 reels.

1-REEL RELIGIOUS FEATURETTES

AMERICAN INDIAN SERIES (THE)
Mission Influences. Rental $1.50.
Arts and Crafts. Rental $1.50.
Child Life. Rental $1.50.

ANCIENT INDUSTRIES OF MODERN DAYS
Rental $1.00.

AS WE FORGIVE
A modern story teaching forgiveness. Rental $1.50.

BISHOP DUNN
Rental $1.00.

BLIND BARTIMEUS
Rental $1.00.

CALL OF SAMUEL
Rental $1.00.

CHILDREN IN SEARCH OF GOD
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CHILDREN LEARN ABOUT THEIR NEIGHBORS
The method of Riverside Church in New York. Rental $1.50.

CHINA OUR NEIGHBOR SERIES
China and America. Rental $1.50.
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How China Makes a Living. Rental $1.50.
China's Children. Rental $1.50.
The Three Great Religions of China. Rental $1.50.
Mr. Chang Takes a Chance. He goes to a Christian hospital. Rental $1.50.

CHRIST CONFOUNDS HIS CRITICS
A Biblical story based on Jesus' answer when they wanted to stone the sinful woman. Rental $1.50.

CHRISTIANITY FACES ISLAM
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CHRONICLE
How one boy's life was ruined by lack of self-control. Rental $1.50.

COAST OF TYRE AND SIDON
1 reel. Phoenicia and Philista, adjoining and washed by the waves of the same sea, yet worlds apart in life and work and thought. Rental $1.50.

CORONATION OF POPE PIUS XII
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DAMASCUS
Rental $1.00.

EGYPT IN THE TIME OF MOSES
Rental $1.00.

EVEN IN THIS DAY AND AGE
A challenge to prevent the breakdown of American social fabric. Rental $1.50.

FOR OF SUCH IS THE KINGDOM
Rental $1.00.

GIVE US THIS DAY OUR DAILY BREAD
1 reel. It is the aspect of ever-present danger of drought or devastating raids and the homely lessons Jesus drew from it that forms the motif of this picture. Rental $1.50.

GOOD SAMARITAN (THE)
1 reel. The story as Jesus told it, to answer the question "Who is my Neighbor?" is here reproduced with remarkable fidelity to detail and atmosphere. Rental $1.50.

HEBRON THE ANCIENT
1 reel. Hebron, in ancient Judea, is one of the oldest of Bible cities, and the many authentic scenes in this picture make it a sort of introduction to Old Testament history. Rental $1.50.

HOLY LAND (THE)
Rental $1.00.

HONESTY IS THE BEST POLICY
Discussion group film. Rental $1.50.

HOUR OF TRIAL (Last Supper)
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IF A BOY NEEDS A FRIEND
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Made sacred by the footsteps of Jesus. Rental $2.00.

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LAND OF SAMSON
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LIFE OF CHRIST FROM GREAT PAINTINGS
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A modern story on the evil of jealousy. Rental $1.00.

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1 reel. Dramatization of the story we all know. Rental $1.50.

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1 reel. This is a beautiful scenic dramatization of the Twenty-third Psalm, greatest of all the songs of David, the Shepherd King. Rental $1.50.

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Rental $1.00.

ROME THE ETERNAL CITY
Rental $1.00.

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Missionary activities among the Indians in Santa Domingo, Arizona, Oregon and Alaska. Rental 75c.

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Rental $1.00.

CAIN AND ABEL
Rental $1.00.

THE DELUGE
Rental $1.00.

CRUCIFIXION AND RESURRECTION
Rental $1.00.

CREATION OF MAN
Rental $1.00.

NOAH'S ARK
Rental $1.00.

TYRE AND SIDON
Rental $1.00.

UNWELCOME GUEST (THE)

Jesus in the home of the Pharisee. Rental $1.50.

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1 reel. Few regions in the Holy Land are so replete with the romance and tragedy of Biblical lore as this valley, heart of ancient Canaan and center of the Palestine of today. Rental $1.50.

WALLS AND GATES OF JERUSALEM (THE)

1 reel. Beautiful scenes of the old historical places in this holy city of three religions. Rental $1.50.

WIDOW'S MITE (THE)

Rental $1.00.

THE MADONNA IN THE CHAIR

Let's go back to the year of 1516. Raphael, then a young artist, journeyed into the country in search of inspiration for a new painting. How he found it and made on the end of an empty barrel his preliminary sketch for the wonderful "MADONNA DELLA SEDIA" or "MADONNA IN THE CHAIR." Rental $1.00.

MICHAELANGELO

Famous as artist, sculptor and architect, is by many considered one of the greatest geniuses that ever lived. His fame had grown so great that Pope Julius the second persuaded him to paint the ceiling of the Sistine Chapel. Michaelangelo accepted the commission and for four years he worked on his back painting the wonderful ceiling of the chapel. The finished work is the greatest masterpiece that the hand of man has ever turned out, covering the entire ceiling with a design portraying numerous Biblical incidents and containing 343 different figures. Rental $1.00.

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13 Reels—$23.00

Reel 1—**When Jesus Was Born** (1)	$2.25
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Reels 11 and 12—**The Hours of Trial, His Rejection, Trial and Crucifixion**	4.50
Reel 13—**The Living Christ. His resurrection from the dead**	2.25

RELIGIOUS COLORED 2x2 SLIDES and FILM ROLLS

We have a complete stock of 2 x 2 Religious Colored Slides and Film Rolls.

A few examples of Religious Colored 2x2 Slides

THE PRODIGAL SON (Luke 15, 11-24)

(List of Color Slides)

1. **"Two Sons"**
2. **"Father, give me the portion"**
3. **"The younger son took his journey"**
4. **"And there wasted his substance"**
5. **"And when he had spent all"**
6. **"He joined himself to a citizen"**
7. **"He sent him to feed swine"**
8. **"And when he came to himself"**
9. **"But when he was yet a great way off"**
10. **"Father, I have sinned"**
11. **"Bring forth the best robe"**

THE GOOD SAMARITAN (Luke 10, 30-36)

(List of Color Slides)

1. **"A certain man fell among thieves"**
2. **"A priest passed by on the other side"**
3. **"A levite passed by on the other side"**
4. **"A Samaritan had compassion on him"**
5. **"And brought him to an inn"**
6. **"And took care of him"**
7. **"When I come again I will repay thee"**

PRICE LIST

THE PRODIGAL SON	**11 Slides**	**$5.50**
THE GOOD SAMARITAN	**7 Slides**	**3.50**
BOTH SETS	**18 Slides**	**9.00**

The above 2 sets are "Cathedral" sets. We have many more sets. **(Send for Special Catalogue).**

A FEW EXAMPLES OF RELIGIOUS SLIDE FILMS

THE OLD TESTAMENT

The Getting of Our Bible
The Reading of Our Bible
The Pentateuch
In the Beginning
The Genesis of Israel
The Growth of the Jewish Government.
Israel Under the Judges
The Rise of Israel
The Holy City
Israel's Decline
Isolated Events
Hebrew Life

Each film with manual* (single frame)	$ 2.00
Full set with manuals (single frame)	20.00

THE NEW TESTAMENT

The Dawn of the Christian Era
The Childhood of Jesus
The Preparation of Jesus Christ
The Ministry of Jesus Christ
Jesus As a Healer
Christ As a Teacher
The Activities of Jesus
Closing Scenes of Christ's Work
The Arrest and Trial of Jesus
The Crucifixion
Acts of the Apostles
St. Paul's Mission

Each film with manual (single frame)	$ 2.00
Full set with manuals (single frame)	20.00

RELIGION IN ART

Five rolls containing reproductions of **ninety** famous paintings from the book **Christ and the Fine Arts** by Cynthia Pearl Maus, show how the life of Christ was portrayed by great artists in every age and every land. The pictures have been arranged by the author of the book to follow the chronology of Christ's life and are extremely valuable in worship or study programs.

Christ and the Fine Arts

Set of 5 rolls, no manual (single frame)	$ 7.50
Set of 5 rolls, no manual (double frame)*	10.00

***See NOTE on page 23.**

These films, made through the co-operation of the Presbyterian Board of Christian Education, are reproduced from the famous Harold Copping Bible pictures.

Life of Christ (36 pictures)
Stories from the Old Testament (25 pictures)
Life of Paul and the Parables of Jesus (27 pictures)

Each film with manual (single frame)	$ 2.00
Three rols with manual	5.00
Each film with manual (double frame)	3.00
Each film, hand-colored, with manual (single frame	9.00
Each film, hand-colored, with manual (double frame)	10.00

Tissot's pictorial "Life of Christ," a series of eleven sermons chronologically arranged is being prepared.

1. **The Childhood of Jesus**
2. **From the Ministry of the Baptist to the Rejection of Jesus at Nazareth**
3. **From the Calling of Peter and Andrew to Raising Widow's Son at Nain**
4. **From the Anointing of Jesus' Feet to the Rejection at Capernaum**
5. **From Jesus' Journey in Tyre and Sidon to the Healing of the Man Born Blind**
6. **Gathering Opposition and Perean Ministry to Visit at Home of Zaccheus**
7. **First Three Days of Holy Week**
8. **From the Jews Conspiring Against Jesus to His Arrest**
9. **Trials and Condemnation of Jesus**
10. **Crucifixion of Our Lord**
11. **Resurrection and Ascension**

Price per film with manual	$ 2.00
Complete set with manuals	20.00

RELIGIOUS LITERATURE

The following Picturols were made from the famous illustrations by Joseph Boggs Beale and portray these well-known stories:

A Christmas Carol—Dickens (22 pictures)
The Other Wise Man—Van Dyke (36 pictures)
Ben Hur—Wallace (32 pictures)
Pilgrim's Progress—Bunyan (24 pictures)

Each film, no manual (single frame)	$2.00

HYMNS

The following Picturol contains twelve pictures reproduced from the famous Joseph Boggs Beale illustrations, and words of the hymn.

1. **Abide With Me** (11 pictures)
2. **When I Survey the Wondrous Cross** (8 pictures)
3. **Christ the Lord is Risen Today** (8 pictures)

Film, no manual (single frame)	$2.00
Film, no manual (double frame)	3.00

Rev. Frank W. Dell has arranged twenty hymns in slidefilm form, which include sixteen of the most widely used and best-loved hymns and four original hymns written to well-known tunes. Each film contains the words and visualization for two hymns.

1. **Rock of Ages**
   O Love That Wilt Not Let Me Go
2. **O Sometimes the Shadows Are Deep**
   I'm Pressing on the Upward Way
3. **I Love Thy Kingdom, Lord**
   We Thank Thee for the Flowers (Tune: The Church's One Foundation)
4. **He Leadeth Me**
   The Beautiful Garden of Prayer
5. **Day Is Dying in the West**
   God of the Earth, the Sky, the Sea (Tune: Faith of Our Fathers)
6. **Peace, Peace, Wonderful Peace**
   Thy Word Is Like a Garden, Lord (Tune: America, the Beautiful)
7. **Shall We Gather at the River**
   Grander Than the Ocean's Story (Tune: From Greenland's Icy Mountains)
8. **God Will Take Care of You**
   Let the Whole Creation Cry (Tune: Holy Ghost with Light Divine)
9. **For the Beauty of the Earth**
   This is My Father's World
10. **Hiding in Thee**
    O Jesus Thou Art Standing

Each film colored, no manual (single frame)	$3.55
Each film colored, no manual (double frame)	3.75

(NOTE: Double-frame films may be cut and mounted into 2"x2" slides.)

Many others. Send for Catalogue of RELIGIOUS SLIDE FILMS.

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EDUCATIONAL CATALOGUE

In 16mm Sound

Including ATHLETIC and OTHER SEMI-EDUCATIONAL SUBJECTS

RECESS PROGRAMS

We are offering our school accounts a series of 45-minute programs consisting of 5 reels of shorts mounted on one large reel, so the entire program can be run without a stop. Any combination of one and two-reelers may be used in making up these programs.

FOLLOWING ARE A FEW SUGGESTIONS OF COMBINATIONS:

1. A Serial Episode.
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   One Reel Sport.
2. A Serial Episode.
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   One Reel Educational.
3. Two Reel Featurette.
   One Reel Musical.
   One Reel Travel.
   One Reel Educational.
4. Two Reel Featurette.
   One Reel News.
   One Reel Cartoon.
   One Reel Sport.
5. Two Reel Comedy.
   One Reel News.
   One Reel Musical.
   One Reel Sport.
6. Two Reel Comedy.
   One Reel Musical.
   One Reel Sport.
   One Reel Educational.
7. One Reel Comedy.
   One Reel News.
   One Reel Musical.
   One Reel Sport.
   One Reel Educational.
8. One Reel Cartoon.
   One Reel Featurette.
   One Reel Musical.
   One Reel Sport.
   One Reel Travel.

Rental of 5-Reel Recess Program $5.00 Each

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George Vanderbilt's fishing expedition in which he fights off a shark with a knife, and a great barracuda appears to attack him. Rental $4.50.

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A dramatic saga of the lives of the gallant fishermen of Aberdeen, who embark from the shores of Scotland, to wrest a living from stormy seas. Rental $4.50.

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Thirteen intrepid climbers lose their lives in an heroic attempt to ascend the highest peak in the world. Rental $4.50.

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For Health and Happiness (Silent)	30.47	1
For Health and Happiness (Sound)	39.50	1
Grasshoppers	16.07	2
Harvests For Tomorrow	21.71	3
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Strength of the Hills	8.53	1
The Battle is in Our Hands	21.18	3
The Farm Garden	93.90	2
The Farmer's Wife	7.49	1
The Home Place	25.35	3
The River	25.35	3
The Tree of Life	15.55	2
Tree in a Test Tube	46.26	2
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Home on the Range	8.53	1
In the Beginning	13.99	2
Learn to Swim	11.90	2
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Lifesaving (Sound)	13.47	2
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Here is a dramatic revelation of under-sea life—the eternal fight for existence that goes on among the monsters of the deep sea, with intimate close-ups of their life-and-death struggle for existence. Rental $5.00.

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Life and adventures of an elephant. Rental $4.50.

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Crocodile encounters with the natives of South America. Rental $4.50.

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Tex Stone and Dan Brennen hunt wild animals in Mexico, with bow and arrow. Rental $4.50.

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Story of a little bear cub, in a hunting expedition in Alaska and northern Canada. Rental $3.00.

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3 reels. A picture of the famous Death Valley region in the desert parts of California, showing real life there, taken under real conditions that will entertain, instruct and interest any audience. Rental $4.50.

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"Flash" to the rescue, in a great little drama. Rental $2.50.

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How Dogs are trained to save life. Rental $3.00.

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(In gorgeous natural colors.) Vivid picture of lobster-fishing on the rugged Maine coast. Rental $5.00.

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Wrestling Swordfish
Saga of the Silver Horde
Two Pounder
Water Folk (A)
Marine Life
Neptune's Mysteries
Hermits of Crab Land
Beach Masters (Seals)
Killing the Killer (Mongoose and Cobra)
Denizens of the Desert
Wild Appetites-A
Monkey Business
Holy Elephants of India
Let's Go to the Zoo
Animal Life
Dog Days
Not So Dumb
Clever Critters
Animal Cunning
Seeing Eye
Return of the Buffalo
Jungle Playmates
Elephant—God or Devil
Cony
Kangaroo Rat
Animal Babies
Wild Elephant Roundup
Zoo in Manhattan
Jungle Babies
Jungle Giants
Golden Fleece (Sheep Raising in Australia)
Teddy Bears at Play (Australian Koala)
Grey Owl's Little Brother
Living Jewels (Under Sea Life)
Life History of a Snail
Freaks of the Deep
Life Under the South Seas
Nomads of the River
Diving for Sponges
Beach and Sea Animals
Silvery Salmon
Trout Stream Improvement
Michigan White Tails
African Mystery (White Rhino)
My Friend, the Harti (Elephants) - A
Reactions in Plants and Animals.
Tiger, Tiger (Bengal Tigers)-A
Dog Show
A Day at the Zoo
Animal Aristocracy
The Fight to Live (Ditmar)
Monkey Whoopee (Ditmar)
Wild Animals
Nomads of the Jungle
The Cougar's Mistake
Canine Capers
Strictly Vegetarian (Vegetable Diet)
Brock the Badger-A
Playtime at the Zoo-A
Peculiar Pets
Swampland (Animal Life)
Desert Land (Animal Life)
Forest Gangsters (Mountain Lion)
Michigan Mammals
Michigan Beaver
Michigan Moose
Zoos Who
Dwellers of the Deep
Animal Babies
Netting Fish for Food
Sunshine From the Sea
Thursday at the Zoo
The Hydra (Microscopic Animal Life)
Micro-Biology (Microscopic Animal Life)
The Otter
The Frog
Amoeba and Vorticella (Microscopic Animal Life)
Monday at the Zoo
Tuesday at the Zoo
Livestock Husbandry (Sheep Industry in **Texas**)
You and I at the Gate Post (Dogs)
Highly bred horses.
St. Louis Zoo
Road Runner Battles Rattlesnakes
Clyde Beatty's Animal Thrills
Three Little Bruins in the Woods
Demons of the Deep
Tiger Hunt in Bengal
Oyster Fleet
Wing, Claw and Fang
Fun, Fur and Feathers in Laughs and Thrills
The Chimp's Vacation
Chinooks Children

Rental $1.50 Each

ART AND ARCHITECTURE

STATUE PARADE

2 reels. Tour through the parks of London, where interesting statues are seen. Produced by Paul Rotha. Rental $3.00.

ONE REELERS

Making a Clay Portrait
Churches and Cathedrals, Part I.
Churches and Cathedrals, Part II.
Fountains, Gardens and Statuary.
Colonial Architecture.
Contemporary Artists.
Bells, Gargoyles, and Spires.
Art by the Pound.
Broad Stroke Drawing.
Bridges the World Over.
Pottery Making.
The Doctor (based on Sir Luke Fildes' masterpiece, painted in 1861).

Rental $1.50 Each

BRITISH CATHEDRALS

Title	No. Reels	Title	No. Reels
St. Paul's Cathedral	1	**Winchester Cathedral**	1
Lincoln Cathedral	1	**Salisbury Cathedral**	1
Lichfield Cathedral	1	**Gloucester Cathedral**	1
Ely Cathedral	1	**Westminster Abbey**	1
Wells Cathedral	1	**Canterbury Cathedral**	1
Petersborough Cathedral	1		

Note: Inspiring for Church and Schools. Rental $1.50 each

ASTRONOMY

Galileo's Telescope and Mt. Wilson Observatory-A.
Tidal Theory of Earth and Moon's Creation.
Craters of the Moon.
Clouds.
A Trip to the Sky.
Sun and Moon.
Planets—Asteroids—Comets.
The World's Largest Telescope Reflector.

Rental $1.50 Each

3-REEL ATHLETIC and SPORT SUBJECTS

IDOL OF MILLIONS

The salient events in the life of Jack Dempsey. Rental $4.50.

ATHLETICS AND SPORTS SUBJECTS

TWO-REELERS

SKI CHASE (THE)

Hannes Schneider is the fox, and 100 professional skiiers are the hounds. Thrilling. Rental $3.00.

IN THE POCKET

A bowling film made in collaboration with ABC and WIBC. Rental $3.00.

LEARN TO SWIM

An analysis of the various strokes. Rental $3.00.

LIFESAVING

Shows fundamentals of life-saving, including resuscitation. Rental $3.00.

CONQUEST OF THE ALPS

The most thrilling picture on mountain climbing ever made. Rental $3.00.

THE FUNDAMENTALS OF TENNIS

Donald Budge. In crisp, clear, dramatic pictures, this champion of champions shows how to play the game—how to perfect the forehand stroke, the backhand stroke, the smash service, the volley and the half-volley. Rental $3.50.

ATHLETIC AND SPORTS FEATURETTES

BASEBALL

ONE-REELERS

Big League
Watch Us Next Year
Ladies' Day
Hits, Runs, Errors
Baseball Memories
Baseball, 1938

Rental $1.50 Each

BASKETBALL

ONE-REELERS

Fundamentals of Basketball, by MacMillan.
Fundamentals of Basketball, by Clair Bee.
Fundamentals of Basketball, by Allen.
Fundamentals of Basketball, by Carlson.
Fundamentals of Basketball, by Koegan.
Fundamentals of Basketball, by John Bunn.
Fundamentals of Basketball, by Chuck Taylor.
Championship Basketball.

Rental $1.50 Each

BOWLING

In the Pocket. 2 reels. Rental $3.00.
Bowling Aces. 1 reel. Rental $1.50.

BOXING AND WRESTLING

ONE REEL EACH

Inside the Ropes.
Monarchs of the Ring.
Sock
Famous Wrestling Matches
Famous Fights-No. 1
Famous Fights-No. 2
Famous Fights-No. 3
College Grapplers
Jiu Jitsu
Rough and Tumble
Ace Freeman vs. Billy Venable
Yukon Jake vs. Wild Red Berry
Dean Detton vs. Dick Raines
Billy Raburn vs. Jack Hagen
Billy Weidner vs. LeRoy McGuirk
Wrestling Thrills. Joe Lewis vs. Buddy Baer.
Joe Lewis vs. Billy Conn.
Ring Champs of Yesterday, 1901 to 1908. 2 reels.
Rings Champs of Yesterday, 1907 to 1912. 2 reels.

Rental $1.50 Per Reel

FISHING

ONE REELERS

Gangsters of the Deep (Deep Sea)
Fresh Water Fishing
Big Fish
Let's Go Fishing
Fishing
Fisherman's Paradise
Fishing Thrills
Tigers of the Deep (Big Game Fish, Florida Coast)
Hook, Line and Melody (Singing Guide)
Man Eating Sharks (Off Mexican Coast)
Playground of Mammals (Big Game Fish)
Wrestling Swodfish

Rental $1.50 Each

FLYING

ONE REELERS

Sky Riders
Sky Fishing
Sport of Flying
Air Maniacs
Riding the Skies (Amelia Earhart)
Air Thrills
The First Ten Years of Flying
Exhibition Days
How To Fly

Rental $1.50 Each

FOOTBALL

ONE REEL EACH

Tomorrow's Halfback
Spring Training
Wedge Play
Deception
Kicking
Forward Pass
Penalties
Pigskin Progress
Football Thrills of 1937
Football Thrills of 1938
Football Thrills of 1939
Football Thrills of 1940
Football Thrills of 1941
Football Thrills of 1942
Football Thrills of 1943
Football Parade of 1944
Know Your Football
Controlled Kicking
Touchdown
Gridiron Glory
Touchdown Thrills of 1941
Hold That Line

Rental $1.50 Each

GOLF

ONE REELERS

Golf Timing
Fore
Duffer's Swing
Winning Putt
In the Rough
Under Par
Getting on the Green
Archery vs. Golf
Par and Double Par
Follow Thru

Rental $1.50 Each

HUNTING AND HORSEMANSHIP

ONE REEL EACH

Bugles from the Bluegrass
Camera Thrills in Africa (Wild Game)
Royal Steeds
Hunting Thrills (Capturing Alligators by Hand)
Riders of Riley (Horsemanship of Cadets)
Pack and Saddle
Ride' Em, Cowboy
Animal Sports (Horse, Dog, Rodeo)
Blue Bloods
Grand National Steeplechase
Horses
Training a Roping Horse
Ducks and Drakes
Bob White (Quail Hunt)
Blue Grass Kings
A Man, a Dog and a Gun
Chesapeake Bay Retriever
You and I at the Gate Post
My Kingdom for a Horse
American Royal
Here Comes Malicious
On the Wing

Rental $1.50 Each

MOUNTAIN CLIMBING

Conquest of the Alps—2 reels. Rental $3.00.
Kamet Conquered—3 reels (Himalayas). Rental $7.50.
Tragedy of Mt. Everest—3 reels. Rental $4.50.
Dangerous Mountain Climbing— 1 reel. Rental $1.50.

SKIING

THE SKI CHASE

2 reels (Hannes Schneider). Rental $3.00.

ONE-REELERS

Ski Pilots.
Ski Revels.
Ski Chase in the Alps.
Ski Esta.
Mountains and Skiis.
Ski Thrills in Norway.
Ski Thrills.
How to Ski.
Skiing on Your Feet.
High School of Skiing.
Skiing With Hannes Schneider.

Rental $1.50 Each

TENNIS

The Fundamentals of Tennis (Donald Budge). 2 reels. Rental $3.50.
Tennis Topnotchers. 1 reels Rental $1.50.
Racqueteers. 1 reel. Rental $1.50.

When you ask tennis players or instructors to name the world's leading expert at the game, the usual answer is:

"DON BUDGE"

WATER SPORTS

TWO-REELERS

Learn to Swim. Rental $3.00.
Lifesaving. Rental $3.00.

WATER SPORTS

ONE-REELERS

Row, Mister, Row.
Pardon My Spray.
Saratoga Summers.
Beach Sports.
Floating Fun.
Swim or Sink.
Manhattan Mariners.
Speed Limits.
Swimming and Diving Aces.
Away With the Wind.
Ornamental Swimming.
Water Fun.
Water Sports.
Sea-Going Thrills.
Lady Life Guards.
Outboard Stunting.
Crystal Ballet (Underwater and Diving).
Aquabatics.
Water Bugs.
Johnny Weismuller Teaching Swimming.
Underwater Champions.

Rental $1.50 Each

WINTER SPORTS

ONE REEL EACH

Winter Sports.
The Ice Men.
Take Your Pick (Winter Sports in North and South).
Ice Carnival.
Swiss on White (Winter Olympics, including Sonja Henie).
Fastest Game in the World (Hockey).
Snow Thrills.
Winter and Summer Sports.
Snowscapes.
Snow Fun (Sonja Henie and others).
Winter Holiday.
Winter Magic.
Winter Wonderland.
Frosty Frolics.

Rental $1.50 Each

PLEASE WATCH PROJECTOR CAREFULLY TO GUARD AGAINST FILM DAMAGE

MISCELLANEOUS SPORTS

Gentleman Sports.
Never Catch the Rabbit.
High, Wide and Dashing,
Foreign Sports.
Goals for Gold and Glory.
Singing Wheels.
Puttin' on the Dog.
Poise. (Importance of poise and balance in sports.)
Sport Almanac. (Shows sports suitable for each month of the year.)
Timing. (Importance of timing various sports.)
How To Do The Shag.
Younger Days. (Sports for children.)
Feminine Form.
The Big Apple.
Sunday Sports in Mexico. (Bullfight.)
Thrill a Second.
Jai Alai.
Sports in Slow Motion. (Broad Jump, Hammer Throw, Low Hurdles, Baseball.)
Sports in Slow Motion. (Boxing, Swimming, Diving, Tennis, Billiards.)
Acrobatics. (Various gymnastic stunts.)
Cossacks of Steel. (Motorcycling.
Olympic Highlights.
Hi Steppers.
Spills and Thrills.
The Winner.
Feminine Flashes. (Girls Track work).
Keeping Fit.
Sport of Fencing.
Log Rolling.
Game of Jai Alai.
Sport Parade of 1939.
Canine Champions.
Slim Figuring.
The Poetry of Motion.
Uncrowned Champions.
Sport Parade of 1938.
In and Out.
Speedway.
On the Trail.
Sport Thrills.
Ladies' Day.
Sport Spellbinders.
World's Championship Log Roller.
Track Meet Thrills.
Jui Jitsu
Bows and Arrows.
Kennel Kings.
Devil Drivers.

Rental $1.50 Each

AVIATION SUBJECTS

SKY DEFENDERS—45 Minutes

Canfield Cook, aviation authority and one of the youngest pilots in World War I, describes and pictures training of U. S. Army Air Cadets. Made in co-operation with Air Corps, it shows many spectacular flying scenes, including a simulated bombing flight in close formation, by up-to-the-minute fighting planes. In Beautiful Natural Colors. Rental $12.00.

YOUTH TAKES TO WINGS

4 reels. Is an official National Aeronautic Association motion picture produced with the co-operation of the Franklin Institute of the State of Pennsylvania, Philadelphia, Pa. Rental $10.00.

WINGS OVER THE ANDES

3 reels. A most thrilling trip. Rental $5.00.

BIRD LIFE

Private Life of the Gannets.
Born to Die.
Nature's Songsters.
Song Birds of the North-Woods.
Horned Owl.
Cooper Hawk.
Roadrunner.
Bushland Revels (Lyre Bird in Australia).
Sea-Going Birds.
Birds-A.
The Bittern-A.
The Nightingale-A.
The Short-Eared Owl.
Special Messengers (Homing Pigeons)-A.
Winged Pageantry.
Nomads of the Air.
Birds of a Feather.
Flying Fleet.

Rental $1.50 Each

IN COLOR

Birds of Canada. Rental $2.50.

CURRENT EVENTS SUBJECTS

ONE REEL EACH

Yanks Smash Truk
Fight for Rome—Russia's Smashing Offensive.
Yanks Invade Marshalls
Salute to the Navy
Marines Capture Tarawa
Italy Surrenders
Battle for Tunisia—Surrender at Stalingrad
West Point
U.S. Carrier Fights for Life—Russia Strikes Back
Yanks Invade Africa— Victory Over Rommel
News Parade of 1942
Fight for Egypt
Midway and Coral Sea Battles
MacArthur—America's First Soldier and Manila Bombed
U.S.N. Blasts Marshall Is.
Russia Stops Hitler
Pearl Harbor—Normandie
Commandos in Action
Victory in Sicily—Bombs Rock Italy
News Parade of 1943
The Fighting U.S. Marines
Axis Smashed in Africa
Yanks Bomb Tokyo
Bismarck Sea Victory
Japs Bomb U.S.A.
News Parade of 1941
America's Call to Arms
Tacoma Bridge Disaster—French Fleet Blown Up
News Parade of 1940
Battle for France
Bombs Over Europe
Graf Spee Scuttled
War in Europe
News Parade of 1939
News Parade of 1938
Germany Invades Austria
News Parade of 1937
War in China
Eruption Vesuvius

Rental $1.50 Each

ELECTRICITY

14 REELS

Upper Grades and High School

By J. W. Coffman, in co-operation with the U. S. Navy

Principles of Magnetism (Part 1).
Principles of Magnetism (Part 2).
Principles of Electrostatics (Part 1).
Principles of Electrostatics (Part 2).
Principles of Current Electricity (Part 1).
Principles of Current Electricity (Part 2).
Principles of Electro-Magnetism (Part 1).
Principles of Electro-Magnetism (Part 2).
Principles of Current Generation (Part 1).
Principles of Current Generation (Part 2).
Principles of Electrical Measurement (Part 1).
Principles of Electrical Measurement (Part 2).
The Story of Electricity.

Rental $1.50 Each

FAMOUS PERSONALITIES

Personalities on Parade No. 2.
Personalities on Parade No. 3.
Ford's Tribute to Edison, and First Air Meet—A.
Tuskegee Institute and Edgar Guest.
Presidents of the United States (McKinley through Roosevelt)—A.
Prominent Personalities (including Leroy N. Mills, Helen Rickey, Grisha Goluboff, Margarete Bourke-White, Alois Havrilla).
Why Hitler.
Michael Faraday.

Rental $1.50 Each

FRAUD

Getting Your Money's Worth No. 1—1 reel.
Getting Your Money's Worth No. 2—1 reel.
Getting Your Money's Worth No. 3—1 reel.

Rental $1.50 Each

GEOGRAPHY AND TRAVEL

CONTINENTAL UNITED STATES

LAND OF GIANTS

3 reels. Showing the State Parks of California, where trees are taller, mountains bigger and valleys deeper. Also the work of the CCC in keeping these parks in shape for public enjoyment. Rental $4.50.

WASHINGTON

2 reels. Most beautiful city in the world. Rental $3.00.

ONE-REELERS

Florida.
Yosemite.
Graveyard of Ships.
Old New Orleans.
Washington, D. C.
Golden Gate City.
Manhattan Waterfront.
Heart of the Sierras.
Big Timber.
Gem of the Rockies.
Among the Clouds.
Circus Winter Quarters.
Golden California.
On the Blue Pacific.
Solace of the Hills.
Old Faithful Speaks.
American High Spots.
New York—Wonder City.
Dynamic New York.
City of Proud Memories. (Charleston, S. C.)
Indian Villages of Antiquity.
Baltimore.
Heart of the Confederacy. (Alabama.)
Mt. Vernon—Home of Washington.
Gold Mania.
Florida Cowboy.
Land of the Navajos.
Wings Over World Wonders.
Men of Ships.
Isle of Romance. (Off FloridaCoast.)
New England Coast.
California Missions.
Prolific California.
Mount Rainier.
Cliff Dwellers in Colorado.
Coney Island.
California Picture Book.
Up and Down in New York
Boston.
San Francisco.
Hello Chicago.
Colonial Williamsburg.
I Pledge My Heart—Washington, D. C.
Golden West—Supplement No. 1—Page 11
Across America in Ten Minutes.
Bryce Zion Grand Canyon.
Along the New England Coast.
Cliff Dwelling In Colorado.
New York
Fun in Florida.
Dude Ranch.
Nevada Unlimited.
Trans America.
Pack Trip.
Navajo Land.
Glacier National Park.
Gateway to the Pacific.
Net Fishers of Patzcuaro.
Wings Over World Wonders.
Floridan Curiosities.
Busy Spots in Florida.

Rental $1.50 Each

California Tournament of Roses. (In beautiful natural colors.)
Rental $2.50

TERRITORIES AND POSSESSIONS OF U. S.

Alaska, 1 reel.
Historical Alaska (natural colors), 1 reel.
Beautiful Alaska (natural colors), 1 reel.
Alaska at Work (natural colors), 1 reel.
Alaskans (natural colors), 1 reel.
Seward's Folly (History of Alaska), 1 reel.
Honolulu to Havana, 1 reel.
Aloha, 1 reel.
Little Brown Girl (Hawaii), 1 reel.
Hawaii, Land of Enchantment, 1 reel.
Honolulu Heaven, 1 reel.
Well of Fortaleza (Puerto Rico), 1 reel.
Old Danish Sugar Bowl (Virgin Islands), 1 reel.
Arctic Thrills.

Rental $1.50 Each

THE BRITISH EMPIRE

GREAT BRITAIN AND NORTHERN IRELAND

BONNIE SCOTLAND CALLS YOU

4 reels. Listen to the Scottish music of the bagpipes, and the singing of folk tunes and ballads. See the beauty of Scotland, the Highland games, fishing, yachting and other sports. Rental $6.00.

ONE-REELERS

Shore Leave (British Marine Band).
Blow Bugle Blow.
London, City of Tradition.
Scotland (Fitzpatrick).
London (Castle).
England, Part III.
England, Part IV.
March of Men of Harlech (Wales)
Exploring Old England.
Scotland, the Bonnie.
Gathering of the Clans.
Canal Gypsies (English Canals.)
Land of Burns.
Along the Life Line of the British Empire.
Springtime in the Scillies.

Rental $1.50 Each

AUSTRALIA AND SOUTH SEAS

DEATH DRUMS OF NEW GUINEA

3 reels. Presenting a valuable and fascinating documentation of the customs, tribal practices, religion and mode of living of the natives of Papua where fear, superstition, and Devil Gods rule the lives of the island people. Rental $4.50.

ONE-REELERS

Golden Fleece (Sheep Industry)
Bushland Revels (Australia).
Among the Hardwoods (Australia).
Cruising in the South Seas.
Coo-Cee (Australian Cattle and Sheep).
Life in the South Seas.
Wild New Guinea.
Forest Eden (Pango Pango).
Adventure Isle (Port Moresby, Papua).
In Maori Land (New Zealand).
Cannibals Once (Suva, Fiji).
Southern Crossways (Sydney, NSW).
New Zealand, White Man's Paradise.
Fiji and Samoa (Cannibal Islands).
Papua and Kalubahai (Weird Haunts of Strange People).
Southern Seas.
Nomads of the South Seas.
Canberra the Capitol.
Australia's Boy's Town.
Australia's Transportation.
Belles of the South Seas.

Rental $1.50 Each

CANADIAN SUBJECTS

Birds of Canada (Col.)	1	2.00
Ottawa War Time Capitol	1	1.00
Forward Commandos	2	2.00
Strategy of Metals	2	2.00
Fighting Ships	2	2.00
Women Are Warriors	2	2.00
Battle Is Our Business	3	3.00

Democracy At War Series

Title	No. of Reels	Rental	Pur. Price
Atlantic Patrol	1	$1.00	$15.00
Battle of Brains	1½	1.50	15.00
Call for Volunteers	1	1.00	15.00
Children from Overseas	1	1.00	15.00
Everywhere in the World	2	2.00	22.50
The Fight for Liberty	4	4.00	60.00
Guards of the North	1	1.00	15.00
Heroes of the Atlantic	2	2.00	22.50
Home Front	1	1.00	15.00
Soldiers All	2	2.00	30.00
Tools of War	2	2.00	30.00
Wings of Youth	2	2.00	30.00

Note: The above subjects were produced by the National Film Board of Canada, and are being distributed in the United States so that the American people may get the full benefit of Canada's longer experience in this war.

Canada's Human and Natural Resources

Title	No. of Reels	Rental	Pur. Price
Case of Charlie Gordon	2	$2.00	$22.50
(How a typical Canadian boy rallies to the colors)			
From Gold Ore to Bullion	3	3.00	45.00
Gold from Gravels	3	3.00	45.00
Heritage (the Canadian West)	2	2.00	22.50
Mackenzie River	3	3.00	37.50
Peoples of Canada	2	2.00	30.00
Timberfront	2	2.00	30.00
Unlocking Canada's Treasure Trove (gold mining)	3	3.00	45.00
Hot Ice (Hockey)	2	2.00	30.00
Ottawa on the River	2	2.00	30.00

These subjects may all be included in the Victory Programs and "40 Reels for $40.00."

Canadian Films in Natural Color

Title	No. of Reels	Rental	Pur. Price
Canadian Landscape	2	$4.00	$90.00
Four New Apple Dishes	1	2.00	45.00
Great Lakes	2	4.00	90.00
Iceland on the Prairies (Canada's Icelanders)	2	4.00	90.00
Maple Sugar	1	2.00	45.00
Peace River (far Northwest)	2	4.00	90.00
Canadian Yukon	1	3.00	

CANADA MISCELLANEOUS

ONE REEL EACH

Golden Harbor (Vancouver).
Quebec.
Canadian High Spots (Mts.)
The Land of Evangeline.
Canada.
Rural Quebec Folkways.
Boy Scout Explorers of Canada.
Voyageur Trails.
Algonquin Waters.
Banff-Lake Louise.

Rental $1.50 Each

OTHER BRITISH "AMERICAN" POSSESSIONS

BRITAIN AND HER CHILDREN

2 reels. Beautiful natural colors. Interesting scenes in the "Evangeline Country," in Newfoundland, and in England, Scotland and Wales. Rental $5.00.

ONE-REELERS

Newfoundland.
British Guiana.
Nassau (beautiful natural colors). Rental $3.00.
Trinidad.
Jamaica.
Nassau and the Bahamas.
Coral Isle of the Atlantic (Bermuda).

Rental $1.50 Each

AFRICA

(For convenience we are listing other than British possessions in Africa).

NMANGA

2 reels. A tale of the British Cameroon. Rental $3.00.

MEN OF AFRICA

2 reels. Documentary account of British Colonial administration, illustrated in East Africa, with particular reference to medical services, education and native responsibilities. Rental $3.00.

ONE-REELERS

Exotic Egypt.
Africa—Land of Contrasts.
Trail of the Caravan (Sahara).
Typical Africa.
Gibraltar.
Camera Thrills in Wildest Africa.
Sahara.
Kingdom of the Nile.
Native Africa.
Egypt and the Pyramids (Fitzpatrick)
Rock of Gibraltar.
Calling on Cairo.
Cairo to the Pyramids.
Colorful Cairo.
Cities of North Africa.
Algiers.
Strange Africa.
Children of the Nile.
Along the Lifeline of the British Empire.
Cairo to Capetown.
An Egyptian Adventure.
North Africa.
Congo Curiosities.
The Prowlers (African Veldt).
North of the Sahara (Morocco).
African Pygmy Thrills.

Rental $1.50 Each

OUR LATIN AMERICAN NEIGHBORS AND THE WEST INDIES

CUBA

CUBA BEYOND HAVANA

2 reels. To many people Cuba is Havana. See the rest of this fascinating and beautiful island. Rental $3.00.

ONE-REELERS

Hurricane Island (Santo Domingo)
Fallen Empire (Haiti)
Song of the Voodoo (Haiti)
Wings Over West Indies
Queen of the Indies (Havana).
West Indies (LaVarre).
Gardens of the Caribbeans.
Cuba and the Rhumba (Fitzpatrick)
Havana Holiday.
Magical Havana.

Rental $1.50 Each

Cuba. 1-reel Natural Colored Subject. Rental $3.00.

MEXICO

ZITARI

2 reels. The impressive ruins of the lost civilization of a forgotten race serve as the background for the re-enactment of a famous Mayan legend with authentic costumes supplied by the Mexican Museum. Rental $3.00.

TAXCO

2 reels. A fascinating story of Unknown Mexico. Rental $3.00.

VIERNES DEL DELORES

2 reels. Another fascinating film on Mexico. Rental $3.00.

NATIVE ARTS OF OLD MEXICO

2 reels. Rental $3.00.

MEXICO TODAY

2 reels. Beautiful natural colors. Photographed in 1942. Rental $5.00.

ONE-REELERS

Mexicana.
Land of Aztecs.
Workshops in Old Mexico.
Land of Montezuma.
Through the Ages.
Where Money Is Not God.
Beyond the Rio Grande.
Mexico.
Romantic Mexico.
Net Fishers of Patzcuaro (Indians)
Mayan Monuments of Yucatan.
Mexican Fiesta.
Land of the Incas.
Zapotecan Potters.

Rental $1.50 Each

CENTRAL AMERICA AND CANAL ZONE EXTRA SPECIAL

3 REEL FEATURETTE IN BEAUTIFUL COLOR

GUATEMALA—The Land of Color

Eighty per cent of the inhabitants of Guatemala are pure Indians. Different costumes are worn in different villages. This picture shows the colorful heart of Guatemala with its interesting ceremonies, quaint customs and costumes. Rental $7.50.

ONE-REELERS

Mayaland Today.
Boys of Atitlan (Guatemala).
Silver Mountain Country.
Seventh Wonder (Panama Canal).
Land of the Eagle (Guatemala).
Children of the Sun.
Menace of Guatemala (Volcanoes).
Comicruise to Guatemala.
Journey Through the Isthmus.
From Ocean to Ocean.
Big Ditch of Panama (Canal).
Pan-Americana.
Spanish-Speaking World.
Colonial Guatemala.
Children of Democracy (Costa Rica)
Guatemalan Market Day (Life of the People). 2 reels.
City of Living Ruins.
Rock Cutters of Honduras.
Ebony Shrine (Guatemala).
Coffee Democracy (Costa Rica).

Rental $1.50 Each

ONE-REELERS IN BEAUTIFUL NATURAL COLORS

El Salvador
Costa Rica

Rental $2.50 Each

CENTRAL AND SOUTH AMERICA

OUR NEIGHBORS DOWN THE ROAD

5 reels. This beautiful picture in NATURAL COLORS portrays very vividly the scenery, people and customs of our Latin American neighbors. The film was prepared by the Committee of Inter-American Relations, and deposited with us, by them. NO CHARGE OF ANY KIND IS MADE FOR THE USE OF THIS FILM, WHEN ACCOMPANIED BY ONE OR MORE OF OUR RENTAL SUBJECTS.

SOUTH AMERICA

INCA-CUZO

2 reels. Peru has always been an intriguing country. This picture tells the story of its early civilization. Rental $3.00.

SOUTH AMERICAN CRUISE

Know more about our neighbors. A beautiful film. Rental $2.50.

ONE-REELERS

The Black Giant (Andes).
Sliding Off the Andes.
Abandoned in Amazon Forest.
A Night in the Amazon Jungle.
Kuashu the Head Hunter.
Romantic Argentina.
Rio the Magnificent.
South America.
Rio de Janeiro.
Glimpses of Brazil.
Amazon and the Andes.

Rental $1.50 Each

AUSTRIA

ONE-REELERS

A Day in Vienna.
Salzburg Festival.
A Village Symphony (Austrian Alps).
Beautiful Tyrol.
Tyrolese Costumes and Customs.
Rambling in Vienna.

Rental $1.50 Each

CHINA AND THE CHINESE

THE PENTHOUSE OF THE GODS

4 reels. Is there a more interesting country in the world than Tibet? This wonderful natural **color film** shows the **innermost** Lamaseries and cities of this fascinating country. **Rental $15.00.** Shorts added gratis, if desired.

THIS IS CHINA

3 reels. An exceptionally fine and authentic picture of present day China, showing their struggle to wrest living from "the Good Earth." It also shows their unique customs, and the present invasion by Japan. A de luxe picture. Rental $4.50.

THUNDER OVER THE ORIENT

2 reels. A realistic picture of the war in China—Scenes from the actual battlefield. Rental $3.00.

WITH CHINA AT THE FRONT

2 reels. An exceptionally fine picture showing China before the invasion, and excellent scenes of her warring army. Rental $3.00.

CHINA

ONE- REELERS

Rental $1.50 Each

Pepin, Land of Khan
The Imperial City (Pekin and the Great Wall).
China.
Picturesque Hong Kong (Fitzpatrick).
The Land of Chang How (China).
Shadow of the Dragon (Mongolia).
In Shanghai.
Temple of Heaven (Chinese Temples).
Ghosts of Empire (Pekin).
Haunts of Romance (Hong Kong).
Death's Hostelry (Canton).
Hong Kong (Andre de la Varre).
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DENMARK

Denmark. 1 reel. In beautiful natural colors. Taken just four months before the invasion. Rental $3.00.

FINLAND

ONE REEL

Finland. (In beautiful natural colors.) Rental $3.00.

FINLAND (In Black and White) 1 Reel

Industrious Finland.
Finland Speaks.
Finland Marches On.

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FRANCE

4 reels (in Beautiful NATURAL COLORS). This **beautiful natural color featurette** shows the people, customs, traditions, buildings and industries of Paris and rural France. Rental $15.00. Shorts added gratis, if desired.

ONE-REELERS

Provincial France.
Paris.
Glimpses of French Country Life.
Paris, the Beautiful.
Along the French Riviera.
Thru the Pyrenees to Lourdes.
Thru Normandy to Mt. St. Michel.
Glimpses of the Heart of Paris.
Bits of Brittany.
Old Ruins of Normandy.
Fabulous Marseilles.
Ancient Cities of Southern France.
Historic Cities of the Norman Coast.
Journeys to Normandy.

Rental $1.50 Each

GERMANY

ONE-REELERS

Trip Thru Germany.
The Saar.
Germany.

Rental $1.50 Each

EXTRA!

HITLER DOING THE LAMBETH WALK

1/3 reel. Rental 75c. Sales price $6.00.

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ONE-REELERS

Dutch Treat (Holland).
Highways of Holland.
Holland Mosaics.
Holland and the Dutch.
Holland (in natural colors). Rental $3.00.
Zuyder Zee.
Holland (black and white).

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4 reels. An authentic drama, made in India. Rental $4.50.

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Land of the Maharajahs.
Benares, Hindu Heaven.
Colorful Jaipur (Fitzpatrick).
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Hindu Holiday.
Holy Men of India.
Land of Ghandi.
Temples of Silence (Bombay).
Peacock Throne (Delhi).
Love's Memorial (Taj Mahal).
Dravidian Glamour (Madura).
Mother Ganges (Benares).
Mystic India.
Tibet, Land of Isolation.
Temple of Love (Fatehpur Sikri).
Gateway to India (Bombay).
Charming Ceylon.
First Paradise (Colombo, Ceylon).
Second Paradise (Ceylon).
Call of Mohammed.
Fakirs of the East.
Door of Asia
City of the Sun (Jaipur).
Tropical Ceylon).
Utmost Isle (Ceylon).
Isle of Spice.
Ceylon.
Romance of India.
Temples of the Orient.
Gateway to the Pacific.

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2 reels. Ireland in all its rugged beauty. Rental $3.00.

ONE-REELERS

Ireland.
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Ireland, the Melody Isle.
Come Back to Erin.
Irish Fantasy.
The Irish Isle.
Glimpses of Erin.

Rental $1.50 Each

ITALY

ONE-REELERS

Italy (Fitzpatrick).
Glimpses of Italy.
Modern Rome.
Italy Travelogue.
Venice the Magnificent.
Venice (Grand Canal).
Italy.
A Day in Venice.
Venetian Nights.

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VAGABONDS ABROAD

2 reels. A trip through Japan in springtime. Very interesting and beautiful. Rental $3.00.

ONE-REELERS

Empire of the Sun.
Japan (Cipango).
Oriental Metropolis (Tokio).
Spirit of the Sho Gun (Japanese Festival).
Cherry Blossoms.
A Japanese Rome (Kyoto).
Sunny Splendour (Nikko).

NOTE: Know Japan as she was before her hostile acts. These films were all taken before Pearl Harbor.

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FIVE FACES

3 reels. A survey of the Malay Peninsula and the five different races who live there in harmony. Rental $4.50.

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Raffles 'n Rubber (Singapore).
Singapore.
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Singapore (Andre de la Varre).
Mandalay.

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THE MEDITERRANEAN COUNTRY

Roving the Mediterranean, 1 reel.
Gibraltar, 1 reel.
Rock of Gibraltar, 1 reel.
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Citadels of the Mediterranean, 1 reel.
Along the French Riviera, 1 reel.
Mediterranean Shores (Malta), 1 reel.

Rental $1.50 Per Reel

THE NETHERLANDS EAST INDIES

ONE REEL EACH

Bali (Castle).
Bali (Burton Holmes).
Isle of Isolation (Bali).
Java.
A Garden Granary (Java).
Ceremonies in Bali.
Nias and Sumatra.
Glimpses of Picturesque Java.
Macassar.
Over the Seas to Borneo.
Celebes.
Borneo.
Komodo (Celebes).
Dutch Guiana (West Indies) (Land of the Djukas).

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NORWAY

NORWAY

2 reels. In beautiful Natural Colors. This picture was taken less than four months before the invasion. Rental $5.00.

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Norway (Fitzpatrick).
Daughters of the Sea.
Life in Lapland.
Fishing in the Fjords.
Norwegian Sketches.
Norway.

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ONE-REELERS

Navajo Demons.
Real Americans (Indians).
Nomads of the Plains, and Past. (Indians.)
Trails of the Lonesome Pine.
(Tennessee Mountain Whites.)
Eskimo Walrus Hunt.
Hunting Musk Ox With the Eskimos.
A Lonely Soul. (Mexican Indian.)
Arctic Thrills.

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ONE REEL EACH

Modern Manila.
People of Luzon.
Beautiful Baguio.
Filipino Farmers.
Zamboango.
Intramuros.
Jolo.
Castilian Memories (Manila).
Cebu.

Rental $1.50 Each

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Brides of Sulu. A most interesting study of beliefs and customs of the Moros. Rental $3.00.

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Impressions of Moscow.
Soviet Arctic.
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ONE REEL EACH

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On the Line of Fire—1 reel.
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RUSSIAN CULTURE

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"GOLDEN MOUNTAINS" by Dmitri Shostakovitch

The world famous composer plays "The Waltz," from his score, "Golden Mountains," at the piano, accompanied by the Moscow Orchestra.

TSCHAIKOVSKY'S "SWAN LAKE BALLET"

Performed by the Corps de Ballet of the Moscow Theatre with Maria Semyonova as premiere ballerina.

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Three authentic folk dances by the State Ensemble of the Folk Dance. MOLDAVENTZ (Moldavian Dance); KRIZHACHECK (Beylo-Russian); KAZAKI (Azerbaidzham).

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Physical education and athletics.
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Russia.
Red Republic.
Eyes on Russia.
Leningrad Gateway to Soviet Russia.
Moscow, Heart of Soviet Russia.
Russia Stops Hitler.

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Send for Descriptive Circular on Russian Films.

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From Barcelona to Valencia.
From Valencia to Granada.
From Granada to Toledo.
In Old Madrid.
Spain, Yesterday and Today.
Old Spain.
Moorish Spain (excellent study of rural life, customs and dances).
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Midsummer in Sweden.
Venice of the North (Stockholm).
What About Sweden Now?

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ONE-REELERS

Alpine Garden.
The Glacier's Secret.
Dogs of Solitude (Alps).
Men of the Alps.
Four Barriers (Alps).
Swiss on White (Skating).

Rental $1.50 Each

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ONE REEL EACH

Damascus and Jerusalem.
Damascus.
Palestine.
City of David (Jerusalem).
Pilgrimage Thru Palestine.
The Holy City.
Jerusalem, Cradle of Faith.
Holy Land (The).
Easter in the Holy Land.
Paths in Palestine.

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2 reels. The economic life of an interesting country. Rental $3.00.

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Siam (Thailand).
Drums of the Orient (Siam).
Mystic East (Korea).
Siam to Korea.
Thom, the Unknown (French Indo-China).
Jungle Bound (Cambodia).
A Celestial Venice (Bangkok, Siam).
Ethiopia.
Abyssinia.
The Last Resort (French Somaliland).
Morocco (French Possession).
Found in Morocco.
Rome in Ancient Africa.
Garden of Allah (French Algiers).
Algiers.
Cairo to Capetown.
Drums of Fear (Religious Rites of African Tribes).
Mystic East (Asia).
Jungle of Terror (Asia).
Door of Asia.
Drums of the Orient (Asia).
Europe Today (Europe).
Romania (Europe).
Beautiful Budapest (Hungary).
Quaint Inns and Resorts of the French Coast (Europe).
Central Europe.
World's By-Way.
Island of Mystery.
Iceland, Land of Vikings.
Mystic Isle (East Indian Archipelago).
Madeira.
Majorca (Spain's Romantic Isle).
Colorful Ports of Call (Seychelles).
East Indian Islands.
Down to Dalmatia (Off Jugo-Slavia).
Flores (Azores).
Divine Porte (Dardanelles and Istanbul.
Bagdad.
Czechoslovakia.
Antwerp (Belgium).
Eternal Athens.
Belgium the Beautiful.
Paris.
Song of the Voodoo (Haiti).
Pack Trip (Rocky Mountains).
Nevada Unlimited (Boulder Dam).
Dude Ranch (Montana).
Africa, Land of Conquest.
Africa, Land of Heat.
France in North Africa.
Contrasts in China.
Shanghai.

Rental $1.50 Each

EXTRA SPECIAL

18 — ONE REEL SUBJECTS — 18

In Gorgeous Cinecolor

1. **BENEATH CORAL SEA**
A trim vessel is going to take us to the Great Barrier Reef of Australia which has been described as the "Eighth Wonder of the World."

2. **MODERN KIDS**
This is a sort of "Junior Newsreel" with the famous stuttering comic Roscoe Ates acting as master of ceremonies. Famous midget auto races, swimming stunts, etc. make this one of the most interesting subjects in this series.

3. **HIDDEN TREASURES**
Descending into the calm waters of the Bahamas in a heavy metal ball with a thick quartz window, we view the hidden treasures of the sea.

4. **BEAUTIFUL BERMUDA**
Bermuda in all its color and without automobiles is shown in all its beauty.

5. **PORT OF MEMORY**
San Francisco Bay.

6. **MAORI**
In New Zealand, the aborigines, known as the Maoris, are quickly disappearing. We are very fortunate in this picture to show them in the many moods of their life . . . working, dancing and singing.

7. **MELODY ISLE**
Honolulu and Hawaii, and everything this romantic land has come to mean to all.

8. **MYSTERY ISLANDS**
New Zealand, "Britain of the South", is a glorious land of contrasts and scenic grandeur.

9. **SOUTHERN BEAUTIES**
This story treats of Miami, America's Riviera.

10. **A STREET OF MEMORY**
The heart of a city — Los Angeles, populated with people in Mexican and Spanish costumes, their shops adorned with gay awnings — Olvera Street throbs with the spirit of the past.

11. **TOWERS OF MELODY**
Photographed in the Rainbow Room, Radio City, featuring the well known dancing act of Velez and Yolanda. Also shows interior of a broadcasting studio.

12. **DREAM HARBOR**
At Honolulu, one of the most beautiful islands of the Pacific.

13. **ISLE OF JUNE**
Lying but a few hours by plane off the coast of Florida are the Bahama Islands, where Columbus first sighted the new world.

14. **SWEETEST STORY EVER TOLD**
This subject was photographed around the California Missions, used as a background for the song "Juanita." There is also the song "Sweetest Story Ever Told" from the famous poem of the same name, with illustrated background.

15. **UNDER THE SOUTHERN CROSS**
Sailing south for days across the blue Pacific on our way "down under" to Australia, we arrive at Sydney, one of the largest cities in Australia.

16. **GATEWAY TO THE NORTH**
This is a picture taken in the far Northern Alaskan waters, showing the huge icebergs, the Eskimos and how they live.

17. **FISHERMAN OF THE NORTH**
This subject deals with the Eskimo fishing in the far North and is one of the subjects made by the MacMillan expedition.

18. **ESKIMO ISLE**
This subject is based upon a trip made by the world famous explorer Donald MacMillan, through the Arctic regions, in which is shown the many dangers encountered on the trip, the ice floes and ice bergs, the lives of the Eskimos and their work, the many varieties of fish and the fishing of the Eskimos.
Rental $3.00 Each

ICE-FLOE
Two Reeler. Two reel version of an expedition into the Eskimo country by Commander Donald B. MacMillan. Price on Application.

EXTRA SPECIAL

A TRIP THROUGHOUT THE WORLD

See the world before it was despoiled. Travel to these interesting parts of the world via 16mm sound film. These trips come mounted on one 1600 foot reel, running time 45 minutes, **(Rental ONLY $4.00).** Special rates by the week or month.

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1—Borneo, Flores, Bali.
2—Celebes, Komodo.
3—Castillian Memoirs.
4—Thailand.

TRIP No. 2—AFRICA

1—Native Africa.
2—Algiers.
3—Morocco.
4—Sahara.

TRIP No. 3—SOUTH AMERICA

1—Glimpses of Brazil.
2—Land of the Incas.
3—South American Vista.
4—Rio De Janeiro.

TRIP No. 4—SCANDINAVIA

1—Holland.
2—Norway.
3—Life in Lapland.
4—Heart of Sweden.

TRIP No. 5—MALAY IN INDIA

1—Malay.
2—Singapore.
3—Romance of India.
4—With the Asiatic Fleet.

TRIP No. 6—OUR LATIN NEIGHBORS

1—Mexico.
2—South American Vista.
3—Rio, the Magnificent.
4—Havana.

TRIP No. 7—AFRICA AND THE MEDITERRANEAN

1—Pygmy Thrills.
2—Exotic Egypt.
3—Africa.
4—Mediterranean Shores.

(These Are Only Samples. Our Library Contains Many Reels, From Every Country in the World).

TRIP No. 8—HOLLAND-SCANDINAVIA

Holland.
Norway.
Life in Lapland.
Midsummer in Sweden.

TRIP No. 9—DUTCH INDIES AND PHILIPPINES

Bali.
Manila.
Filipino Farmer.
Macassar.

TRIP No. 10—SOUTH SEAS

Cannibals Once.
Papua and Kalabahai.
Fairest Eden (Pango Pango).
Southern Crossways (Sydney).

TRIP No. 11—AFRICA

Algeria.
Morocco.
Egypt.
The Prowlers (animal life).

TRIP No. 12—MALAY AND INDIA

Singapore.
Mystic India.
Temples of the Orient.
Raffles and Rubber.

TRIP No. 13—MEDITERRANEAN COUNTRY

Madeira.
Venice.
Roving the Mediterranean.
Middle East.

TAKE NOTICE

Don't book by number. The above are simply samples, and represent only a small part of Film Library. Just tell us the Countries you are interested in, and give us your dates. We will do the rest.

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Elementary Manual Training.
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Leather Work.
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Making a Clay Portrait.
Pottery Making.

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HISTORICAL SUBJECTS

2-REEL HISTORICAL SUBJECTS

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The Life of this great artist, and the story of his most famous paintings. Rental $3.50.

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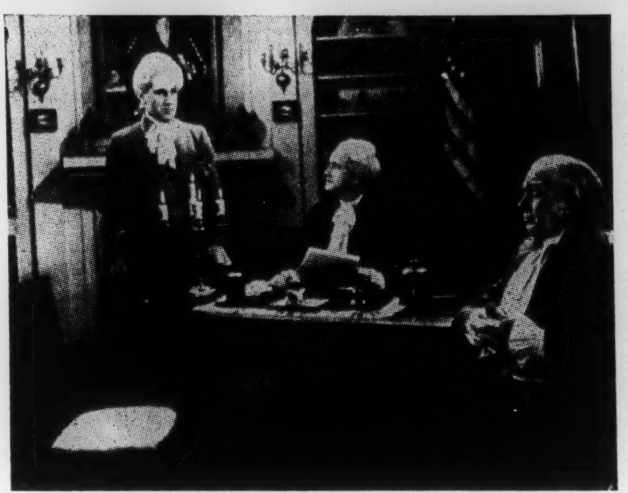

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Showing such important characters as John Quincy Adams, Henry Clay, John Calhoun and James Monroe, brought to life. Rental $3.50.

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See how Texas, an empire in itself, became part of the Union. Rental $3.50.

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How 13 original states grew until we now have a 48-State nation. Rental $3.00.

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This film deals with acquisition of the Territories outside the United States proper. Rental $3.00.

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(In beautiful NATURAL COLORS.) True story of Wells Fargo days, by an all-star Hollywood cast. Rental $5.00.

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Depicts conditions in the old world that drove the Pilgrims to their hazardous journey. Rental $3.50.

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(In Beautiful NATURAL COLOR)

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Jefferson and Monroe.
Forefathers of Liberty.
Flags on Duty.
Historic Nauvoo.
Historic Pennsylvania.

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(In Black and White)

Roosevelt's Inauguration for the Third Term.
Of Thee We Sing.
Our National Government.
Abraham Lincoln.
George Washington.
Washington in Virginia.
Which Way America (National Defense).
Wake Up America (Opportunity).
Mr. President.
Battle for France.
Seed of the Constitution.
Highlights of Lincoln's Career.
Submarine Service.
Birthplace of America.
British-Greek Victories.
Lightning War.
America's First Frontier (Story of St. Augustine, Fla.).
The King and Queen of England at New York World's Fair.
The American Legion in Chicago.
War in Europe.
King and Queen in Canada and United States.
Story of Our Flag.
Graf Spee Scuttled.
The American Way.
The Star Spangled Banner.
Bombs Over Europe.
Lincoln.
Navalo Land.
Boadicea.
Finland Fights.
France (History of).
Inauguration of President Roosevelt.
Spirit of the Plains.
Proudest Americans (Seminole Indians).
Harvard Special (Tercentennial Anniversary).
America's Call to Arms.
Arctic Exploration.
Highways of Yesteryear.
Americana.
Life of Edward.
Father Coughlan.
Austria Vanishes.
War in China.
Bombing of U. S. S. Panay.
Movies Greatest Headlines.
England's Coronation.
Hindenburg Explodes.
American Legion (Los Angeles).
American Legion (New York).
The Visit of George VI and Queen **Elizabeth to Canada and the U.S.**
Golden Gate International Exposition.
New York World's Fair.
Memory Lingers On No. 2.
Cleopatra.
Cleopatra and Anthony.
Mary Tudor.
Our Flag (Poem).
Let Freedom Ring.
Victory in Sicily.
Italy Surrenders.
Hits of the Past—See Grover Cleveland, Theodore Roosevelt and Wm. McKinley in early news reels.

Rental $1.50 Each

HISTORIC & PATRIOTIC SHORT "SHORTS"

During these war times, we recommend that every exhibitor run something patriotic on every program. These short "shorts" are from ⅛ to ¼ of a reel in length, and make an ideal patriotic trailer.

STAR SPANGLED BANNER

Rental 50 cents. Sales price $3.00.

PLEDGE OF ALLEGIANCE TO THE FLAG

(In beautiful NATURAL COLORS.) Rental $1.00. Sales price $10.00.

PLEDGE OF ALLEGIANCE TO THE FLAG

(Black and white.) Rental 50 cents. Sales Price $3.50.

U. S. MARCHES ON

Rental 75 cents. Sales Price $7.50.

HISTORY IN THE MAKING

A SERIES OF SHORT DOCUMENTARY FILMS

28 Different Subjects **5 Minutes Each**

Rental $1.00 Each

Timely digests of the world-wide range of events, personalities and conditions now confronting us. The commentator is **Reagan (Tex) McCrary**, brilliant journalist and radio news reporter, or **Ralph Ingersoll**, alternating.

America's Factory Front (necessity of concerted effort).
America's New Nobility (building a giant airforce).
Battle of the Atlantic (the need for convoys).
Battle of the Mediterranean (war in the Near East).
Bundles for Berlin (the R.A.F. in action).
Gung Ho! (China's appeal for aid).
Hitler's Secret Weapon (Nazi propaganda work).
Master of Timing (the Hitler technique).
Mightier Than Words (role of Radio and Personalities).
Night Hawks (England vs. enemy night bombers).
Our Empire Is the Air (our contribution to modern aviation).
Phophet Without Honor (Gen. Mitchell, air pioneer, vindicated).
The Punctured Yellow Peril (stopping Japan in the East).
Sea Power vs. Air Power (the lesson for U. S. A.).
Secret of the Blitz (co-ordination for mechanized war).
The Sluggers (importance of tanks and anti-war defense).
Swastika Over South America (problems of our good neighbor policy).
That Tattered Lackey (Mussolini's rise and present position).
All God's Children Need WINGS.
Bernard Baruch.
Front Line Children.
The New Disorder.
Our First Line of Defense.
Our War (Round One).
Production Soldiers.
Front Line Women.
Hitler's Threat to America.
I Saw Russia.

ADDITIONAL GOVT. and HISTORY

Flags On Duty.
Sing America.
Marines Have Landed.
Hitler Doing the Lambeth Walk.
Old Flag.
The Enemy Listens (B&W) and (Col.).
Wings Over the Navy
Parachute Jumpers.
March of Aviation.
Air Raid Warning.
We're on the Spot.
Check Well Before Using.
What To Do In An Air Raid.
Submarine Circus.
Soldiers At Sea.
Pilot Boat.
Ford Reconnaissance Joins the Army.
Let Freedom Ring.
Home of the Star Spangled Banner.

HUMAN RELATIONS FEATURETTES

THE STORY OF CIVILIZATION

68 reels. The Story of Civilization is composed of 17 unit film programs, consisting of 68 reels. Each of the 17 subjects represents one phase of this subject—"the most interesting subjects in the world." Each chapter is one 1600 ft. reel, and the films can either be run in class rooms or auditoriums. The subjects may be run in any order and **study guides are available** for each subject.

THE SUBJECTS AND CHAPTERS:

OUR OWN COUNTRY

This picture depicts life upon our continent before the advent of the white man, the coming of the Pilgrims animated by ideals of liberty and religious freedom, the spirit of rugged individualism that carried the pioneers of revolutionary times into and through the Appalachian Mountains, and the story of the Oregon Trail, as condensed from the epic, "The Covered Wagon."

Chapter 1. Before the White Man Came.
Chapter 2. Landing of the Pilgrims.
Chapter 3. Into the Mountains.
Chapter 4. Over the Prairies.

THE CRADLE OF OUR RACE

This program portrays in dramatic form the struggle for existence in the animal world and its counterpart in human life. The migration of 50,000 Indo-European tribesmen over rivers and mountains in search of paturage is shown, as well as the life today of the descendants of like immigrants in India, and the high degree of culture which they finally achieved under the Mogul Empire.

Chapter 1. How All Things Struggle to Live.
Chapter 2. How a Whole Nation Travelled in Search of Grass.
Chapter 3. How Our Distant Cousins Moved Into India.
Chapter 4. The Beautiful Civilization They Founded at Shalimar.

HUMAN RELATIONS FEATURETTES *(Continued)*

THE LAND OF OUR FOREFATHERS

This is a study of the successive migrations of Indo-European peoples over Europe, following the collapse of the Greek and Roman Empires, and the contributions of each to our civilization —the Celtic people with this ideas of individual liberty, the Germanic people with their ideas of discipline and teamwork, the historic development of liberal government in England, and the experiment in extreme state socialism which is now being carried on in Russia.

Chapter 1. The Celtic People of France.
Chapter 2. The Teutonic People of Germany.
Chapter 3. The Land from Which Comes Our Language.
Chapter 4. The Slavic People of Russia.

STORY OF THE FOREST

This program emphasizes the immense importance of the forest for health and recreation, for its lumber, as a home for wild animals, and the vital part it plays in water control and soil erosion. Here we have a study of the work of the Government in reforestation, and pass through a raging forest fire in southern California caused by Man's carelessness, and see the flood which resulted from that fire's destruction.

Chapter 1. Pleasure and Health in the Forests.
Chapter 2. Growing and Protecting the Forest.
Chapter 3. Lumbering.
Chapter 4. The Forest and Water Control.

STORY OF THE JUNGLE

A trip through the jungles of the world—the Amazon, the Congo, Indo-China, and Borneo—shows us the type of people and animals of the jungle. We study of the life history of the yellow fever, the malaria and the common mosquito, and the methods of mosquito control; and we live and struggle with inhabitants of a jungle village in the Congo.

Chapter 1. Jungles Around the World.
Chapter 2. The Deadliest Animal of the Jungle.
Chapter 3. Village Life.
Chapter 4 Perils of the Jungle.

STORY OF THE POLAR REGIONS

This picture shows the attempts Man has made to reach the North Pole and the suffering he has endured to reach that goal, and, finally, Admiral Byrd's flight over the Pole. We visit the people of the Arctic Regions, the Eskimos of Alaska and of Labrador and Greenland, and the inhabitants of northern Siberia. Then we go south, to the coldest region in the world—the Antarctic Regions, where we see the whale, the sea lion, the penguins, and other birds, which are the sole inhabitants of this region.

Chapter 1. In Search of the North Pole.
Chapter 2. People Who Live in the North.
Chapter 3. Life at the Antarctic.

STORY OF THE SEA

This drama of Man's struggle with the waters open with beautiful demonstrations of the swimming methods of national champions, much of it photographed under water, followed by a sea trip into the waters off Lower California, where sharks, marlin, mantua, remora and other interesting types of deep-sea fish are caught and studied. The construction, operation and economic importance of the Panama Canal, the actual laying of an Atlantic cable, the operation and science of a depth sounder and the navigation of a great steamer through storm to safety evidence Man's stride toward mastery of the sea.

Chapter 1. Conquest of Fear.
Chapter 2. Monsters of the Deep.
Chapter 3. Achievement of Engineering.
Chapter 4. Victory of Science.

STORY OF THE MOUNTAINS

The formation of volcanoes, and how they change the earth's surface, is accurately explained in this program. With two boys and an Indian guide we penetrate the mountains, study their animal life, and capture a mountain lion cub. The Swiss Alps reveal the kind of people and industries engendered by the mountains, while the attempted conquest of Mt. Everest by the Bruce Expedition brings the program to a dramatic close.

Chapter 1. How Volcanoes Make Mountains.
Chapter 2. Animals of the Mountains.
Chapter 3. Mountain People and Their Customs.
Chapter 4. Mt. Everest.

STORY OF THE DESERT

In this program we are shown Man's ceaseless struggle with the desert, illustrated in the Vale reclamation project, the ancient civilization established in Egypt, and the life of the wandering tribes of the Sahara.

Chapter 1. Reclaiming the Desert.
Chapter 2. An Old Civilization Built in the Desert.
Chapter 3. Desert People.
Chapter 4. Animals That Live in the Desert.

THE STORY OF TRANSPORT AND TRAVEL

In this program we trace the development of transportation from the days when the camel and horse were the fastest modes of travel up to the present day of the zeppelin, airplane, and zephyr train. We study the history of steam, from the days of Robert Fulton's steamboat, and we trace the development of the gasoline engine, from the days of the horseless carriage to the present day.

Chapter 1. In Earliest Times.
Chapter 2. Pioneer Days in Our Own Country.
Chapter 3. Steam.
Chapter 4. Speed.

STORY OF THE CITY

The first cities were built for defense, such as Paris on its island. Jerusalem with its wall and the cliff dwellings of our own country. Then cities began to grow up where caravan routes crossed, or two rivers met, or a river emptied into the sea. We visit some of our large cities, and we study the many and complex problems of the modern city and see the varied services a large city provides for its inhabitants.

Chapter 1. Cities for Defense.
Chapter 2. Cities for Commerce.
Chapter 3. Problems of the City.

STORY OF SCIENCE

We study the story of the microscope—its invention, its use by Pasteur, the making of a microscope, what we can see through it. From the days of the Chaldeans, Man has been interested in the skies, but it was not until the invention of the telescope by Galileo that an accurate study could be made of the sun and stars and moon and planets. We visit an observatory, we view an eclipse, and finally, we make an imaginary trip to the moon. We study electricity and magnetism, how they operate, and the service they perform for Man.

Chapter 1. Through the Microscope.
Chapter 2. The Story of the Telescope.
Chapter 3. Invisible Forces.
Chapter 4. For the Service of Man.

STORY OF CULTURE

We see in this program that Man through the ages has been seeking something besides food, clothing and shelter. He has also been striving after truth and beauty, and we follow this search from the days when the legends of a race were preserved in song and dance, down to the present days of mass production, with the moving picture as the outstanding expression of its culture.

Chapter 1. Primitive Art.
Chapter 2. The Spirit of Egypt.
Chapter 3. The Classical Age.
Chapter 4. In the Middle Ages.
Chapter 5. The Modern Age.
Chapter 6. Facing the Future.

PRIMITIVE LIFE

We study the life of animals, among them the tiger, owl, lynx, coyote, and see how they obtain their food. From there, we go on to observe the life of a tribe in Siberia, which lives just as primitive man lived, by hunting and fishing. We see a village which lives solely by fishing and witness the tragedy which befalls it when the forces of Nature destroy their fish.

Chapter 1. How Animals Live.
Chapter 2. The Simple Life of the Hunters.
Chapter 3. Hunting in the Water.

HERDSMEN AND FARMERS

This program of the series showing the progress of Man from earliest times to the present day, shows how, from the life of a hunter nomad, he gradually adopted the life of herdsman and farmer, taming the animals and cultivating the wild fruits and grasses. We see the wandering herdmens of the plains of Central Asia, we observe the life of the shepherd, we visit a small farm in Asia, and a primitive market. We see how dependent the farmer is on rain, and how terrible drought is in his life.

Chapter 1. Wandering Herdsmen.
Interlude — Shepherd's Psalm.
Chapter 2. Small Farms in Central Asia.
Chapter 3. On to Market.
Chapter 4. The Thirsty Land.

OUT OF THE EARTH

This is the story of the riches supplied by the earth—clay, stone, metal, coal and oil. From earliest times Man has used mud to build his house. Large cities have been built of sun-dried mud, and wonderful buildings, such as the Pyramids have been constructed of stone. We trace the formation of coal in prehistoric times, and see how it is mined today: We study the history of coal; we contrast the primitive smelting of ore with the steel mill of today.

Chapter 1. Primitive Workers.
Chapter 2. Coal.
Chapter 3. Oil and Gas.
Chapter 4. Iron and Steel.

FROM FARMS TO FACTORIES

This is a vivid picture of the economic changes which have been wrought in the farm within the last 150 years, how from a small self-sufficient unit it has become a large-scale, specialized business. We visit grandfather's farm, we watch the home life on an old-fashioned farm, and then we see the introduction of machinery and the changes it brings about.

Chapter 1. Grandfather's Farm.
Chapter 2. Home Life on the Farm.
Chapter 3. Machinery Comes to the Farm.
Chapter 4. The Business of Farming.
Chapter 5. The Farm Goes to the Factory.

RENTAL $7.50 per subject; $6.00 when the entire 17 subjects (68 reels) are booked at once.

3-REEL HUMAN RELATION SUBJECTS

TODAY WE LIVE

An excellent film on unemployment, showing what England has done to try and solve this problem. Rental $4.50.

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A Japanese girl is "sold" by her parents to a Carnival Show, and runs away to become a Geisha Girl. Rental $4.50.

2-REEL HUMAN RELATION STORIES

STREET SHOW

A most interesting subject, showing itinerant musicians in London. Rental $3.00.

TRAPPING KENTUCKY MOONSHINERS

Illicit distilling operations of the Kentucky mountaineers vs. our G-men. Rental $3.00.

MARCH OF CRIME

How G-men finally got John Dillinger and other similar criminals. Rental $3.00.

SINISTER MENACE

The traffic in drugs, especially in Egypt. Rental $3.00.

UNCLE SOL SOLVES IT

An unusual picture in which Uncle Sol solves some stiff problems in his Radio Court. Rental $3.00.

2-REEL SUBJECTS ON JUVENILE DELINQUENCY

YOUTH IN A CRISIS

The March of Time issue, "Youth in Crisis," tells the story of what is happening to our young people because of the disruptions and excitement of war. It doesn't always make a pleasant picture, but it is always an honest one, and often highly dramatic. Rental $2.50.

CHILDREN OF MARS

Due to the wartime dislocation of the average American family, many children today are experiencing a severe economic, emotional and spiritual disturbance. Freed from parental restraint and imbued with the spirit of high adventure, many thousands of our youngsters have cast aside their normal behavior, their good breeding and even their consciences, to engage in a reckless orgy of gambling, petty larceny, vandalism and sex promiscuousness. "Child delinquency," so-called, is the result. It is this growing and vitally important problem with which "Children of Mars" is concerned. Rental $3.00.

ONE-REEL SUBJECTS

MOTHER

(Based on Whistler's famous painting.) Rental in May, $3.00. Balance of year $1.50.

BOY IN COURT

(Story of the Juvenile Court.) Rental $1.50.

TOWARD UNITY

(A plea for unity.) Rental $1.50.

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(Activities of a 24-hour period.) Rental $1.50.

DIONNE QUINTS

Rental $1.50.

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—The World Over. Rental $1.50.

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Love Is Never Blind.
God and Dad Turned Me Down.
Without Benefit of Solomon.
From the Brink of Eternity.
A Father's Sacrifice.
The Tragic Anniversary.
Children of Gossip.
Stealing a Tombstone.
The Family Quarrel.
Am I a Murderer?

Rental $1.50 Each

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Milk Parade—1 reel.
The Story of Coal.
The Story of Steel.
We're On Our Way (Transportation).
Forests and Flocks.
The Story of Wheat.
Industrial Science (Plate Glass Manufacturing).
Operation of a Forest Nursery.

Rental $1.50 Each

ADDITIONAL INDUSTRIAL SUBJECTS

Story of Electricity
Lucifer Match.
Gold.
Air Waves.
Streamlined.

Rental $1.50

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(16 MM SOUND)

Airplane Radio Antennas—14 min.
Aerial Navigation: Maps and the Compass—16 min.
Aerial Navigation, Part IV: Radio Aids—32 min.
Aerodynamics, Part I: Properties of Air.
Aerodynamics, Part II: Lift.
Aerodynamics, Part III: Air Resistance and Streamlining.
Aerodynamics: Airflow—22 min.
Aerodynamics: Forces Acting on an Airfoil—32 min.
Air Currents and How They Behave—10 min.
Air Currents and Theory of Streamlining (A)—10 min.
The Autogyro.
Aircraft and How They Fly.
Airplane Structures, Part 1: Structure Units, Materials and Loads for Which Designed—10 min.
Airplane Structures, Part II: Wing Construction—14 min.
Airplane Structures, Part III: Fuselage Construction—10 min.
Airplane Structures, Part IV: Control Surfaces—12 min.
Airplane Structures, Part V: Alighting Gear—11 min.
Airplane Structures, Part VI: 31 min. Manufacturing Methods.
Airplane Structures, Part VII: Static Testing—15 min.
Aircraft Engines: Carburetion—45 min.
Aircraft Engines: Elements of Electricity as Applies to Ignition Systems—35 min.
Aircraft Engines: Types, Mechanisms, and Oiling Systems—45 min.
Aircraft Propellers, Part I: Principles and Types—21 min.
Aircraft Propellers, Part VII: Hamilton Hydromatic Propeller Theory and Operation—20 min.
Aircraft Hydraulic Systems, Part 1: BC-1 Airplane—19 min.
Airplane Hydraulic Brakes, Part 1: Principles of Operation—14 min.
Airplane Hydraulic Brakes, Part II: Types, Construction and Action—35 min.
Airscrew.
Aviation Engine—Disassembly and Inspection—20 min.
Celestial Navigation, Part I: Introduction and Location of Celestial Points—22 min.
Celestial Navigation, Part II: Principles of Celestial Navigation — Position Finding on the Earth—18 min.
Celestial Navigation: Charts—24 min.
Celestial Navigation: The Earth—20 min.
Chemistry of Combustion—10 min.
Drilling in Metal, Wood, or Plastics—27 min.
Essentials of Wood Turning—10 min.
Essential Parts and Types of Planes.
How to Fly.
Identification of Aircraft: The W.E.F.T. System of Aircraft Identification—Special Characteristics—14 min.
Industrial Science—Showing manufacture of Plate Glass and 232 degrees Colder Than Ice—10 min.
Methods of Flight—20 min.
Modern Weather, Theory and Structure of Storms, Part 1—22 min.
Modern Weather, Theory and Structure of Storms, Part II—18 min.
Servicing the Aviation Spark Plug—28 min.
Transfer of Power—20 min.
Useful Knots—28 min.
The W.E.F.T. System of Aircraft Identification: Basic Characteristics—17 min.

Rental $1.00 per Reel.

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The Steel Rule—12 min., $1.00.
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Machining Rectangular Cast Iron Block—25 min., $2.00.
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Rough Facing, Turning & Drilling—31 min., $2.00.
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Keel Block and Bottom Cradle—19 min., $1.50.
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Cutting Thread with Taps and Dies—18 min., $1.50.
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Fundamentals of Side Cutting Tools—11 min., $1.00.
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Turing a Taper with Tailstock Set Over—17 min., $1.50.
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OPERATIONS ON THE SENSITIVE DRILL

Drilling a Hole in a Pin—10 min., $1.00.

OPERATIONS ON THE VERTICAL DRILL

Locating Holes, Drilling and Tapping In Cast Iron—17 min., $1.50.
Countersinking, Counterboring and Spotfacing—19 min., $1.50.
Countersinking, Counterboring and Spotfacing—20 min.

AIRCRAFT WORK

ASSEMBLING AND RIVETING

Assembling in a Jig (Fitting & Lining Up).
Assembling in a Jig (Drilling & Riveting).
Drilling with Portable Drill Motors.
Dimpling and Countersinking.
Driving and Bucking Rivets.
Removing Defective Rivets.

BLANKING

Blanking Sheet Metal on the Squaring Shear.
Blanking Sheet Metal with Hand Snips.

TEMPLATES, FORMING, TUBE BENDING

Sawing Template Metal.
Filing Template Metal.
Finish Forming by Hand.
Tube Bending by Hand.

FARM WORK

Reconditioning a Mower—Part 1 Cutter Bar.
Reconditioning a Two-Bottom Tractor Plow.
Reconditioning a Grain Drill.
Community Canning.
Sheep Shearing.

SLIDE RULE

The Slide Rule (The "C" and "D" Scales).

SHIPBUILDING

MARINE MACHINERY INSTALLATION

How to Check and Surface Foundations.
Aligning and Installing Auxiliary Machinery.
Filing and Installing Chocks.
Laying Out, Drilling, and Tapping Flanges on Sea Chest.
Installing Valves and Strainer on Sea Chest.
Laying Out and Installing Stern Tube, Tail Shaft, and Propeller, Part I—Running a Temporary Line.
Laying Out and Installing Stern Tube, Tail Shaft, and Propeller, Part II—Laying Off Bulkheads.

COPPERSMITHING

Bending Copper Tubing to a Wire Template.
Brazing Flanges with Spelter
Brazing Flanges with Silver Solder.

PIPEFITTNG

Measuring Pipe, Tubing and Fittings.
Cutting and Threading Pipe by Hand.
Cutting and Threading Pipe on a Power Machine.
Making a Cold Bend on a Hand-Powered Machine.
Covering Hot and Cold Pipes.

VERTCAL MILLING MACHINE

Using a Shell End Mill.
Cutting a Dovetail Taper Slide.
Cutting a Round End Keyway.
Milling a Helical Groove.
Milling a Circular T-Slot.

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Sharpening a Side Milling Cutter.
Sharpening a Plain Helical Cutter.
Sharpening a Shell End Mill.
Sharpening a Form Relieved Cutter.
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Up to 10 Min. $1.00. From 10 to 20 Min. $1.50. Over 20 Min. $2.00.

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We have a stock of excellent slide films in sound, **for sale only.** Let us tell you about one viz:—

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How can one combat absenteeism and lost time? By preaching or berating the workers? By penalizing them or legislating against it? Experience has proven that neither preaching nor penalizing has had much effect. The one person who can remedy the evils of absenteeism and lost time is the worker himself. And whether he will do this or not depends upon his conscience.

That is the purpose of this film—to effect such an emotional impact on the conscience of workers that they will WANT to make every minute count. "The Power Of A Minute" film dramatizes the evils of lost time so effectively that when workers have seen it they voluntarily WANT to eliminate unnecessary absenteeism. "THE POWER OF A MINUTE"—the complete kit to include filmstrip, recording, meeting guide, and poster to announce showings. $25.50 complete.

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Large White or Cabbage Butterfly.
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War in the Trees (Wood Wasp)
Underground Farmers (Ants)
Deadly Females (Female Insects)
Queen of the Underworld
Egg to Butterfly
Her Majesty, the Queen Bee
Insect Clowns
The Farmer's Friend
Life Cycle of an Ant Lion
Moths
Beetles
Pond Insects
Butterflies
Aphids
Spotted Wings (Monarch Butterfly)
Carpi Beetle
Insect Homes
Spiders
The Silk Moth
Swallow-tail Butterfly
The Earthworm
Beetle Studies
Swat the Fly
Dwellers of Hedge and Thicket
Insect Oddities
Nature's Handiwork (Caterpillars)
Butterflies
Killers of the Insect World
Battle of the Centuries

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3-REEL JUVENILE SUBJECTS

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A true and faithful reproduction of this delightful fairy tale by Grimm. Rental $4.50.

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Daniel Defoe's masterpiece, told by Uncle Don of radio fame. Rental $5.00.

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Another "Flash" hero story. Rental $3.00.

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CHILDREN'S STORY CLASSICS

COLOR CARTOONS

We are happy to announce the availability of six new cartoons, **in gorgeous Cinecolor,** as well as black-and-white, and in all the popular lengths and versions. These are based on classic childrens stories that everyone knows, and while these stories are somewhat modernized in the telling, the basic thread is held to closely.

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Color Sound $2.50.
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The Wolf terrorizes all the well-known characters of Mother Goose land, but Little Bo Peep saves her lamb, and the Wolf gets badly stung.

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Dick and his cat are suitably rewarded by King whose country had been over-run with mice. Nice moral re kindness to animals.

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Washington Irving's classic legend closely followed in ultra-modern color cartoon. Two men and a maid, and a practical joke that backfired.

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Voted the "best liked" of all stories by Chicago Public School primary grade children. There are some variations from the original theme, but the moral remains the same—"Don't mess with a tiger and mind your mothers."

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Somewhat modernized version, but entirely in spirit of original tale. Puss saves the beautiful princess from the ogre.

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Rental $2.50 Each During December—$1.50 Balance of Year

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Santa Claus Story.
Day Dreams.
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New Christmas Cartoon.

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(a) More Adventures of Bunny.
(b) Gingerbread Castle.
(c) Red Riding Hood.

CHILDREN'S HOUR No. 2
(a) Literary Collies.
(b) Dumb Dancers (Marionette).
(c) Truth About Mickey.

CHILDREN'S HOUR No. 5
(a) Busy Bee.
(b) Chemical Forest.
(c) Talkie DeLuxe (Marionette).
(d) Nurse Maid Your Eye.

CHILDREN'S HOUR No. 7
(a) Perfect Fascist State (Ants).
(b) Neapolitan (Marionette).
(c) Dog About Town.

CHILDREN'S HOUR No. 8
(a) Babies.
(b) Speed.
(c) Winter White.

CHILDREN'S HOUR No. 9
(a) Kitchen.
(b) Moose.
(c) Harry Foster Welch.
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3—J. H. Wigmore, Professor Emeritus, Northwestern University Law School. Subject **"RATIONALE OF THE LAW OF EVIDENCE."**
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These lectures are introduced by Felix Frankfurter, A.B., LL.B., Bryne Professor of Administrative Law at Harvard University, and Associate Justice of the Supreme Court of the United States.

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ONE REEL EACH

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The Old Prospector Talks
Red Skins Bit the Dust.
Sea Dreams.
Boyhood.
After the Storm.
Bill and I Went Fishing.
Call of the Woods.
Couldn't Live Without You.
Early in the Morning.
Ma and the Auto.
Song of the Builder.

Rental $1.50 Each

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"MUSIC OF THE MASTERS" SERIES

Supreme Concert Artists in Motion Pictures

JOSE ITURBI, Pianist
This impeccable musician and dazzling virtuoso has a dynamic personality and is a human being of charm and intelligence. He has been termed "the musician's yardstick, the critic's delight and the public's idol." Iturbi's time is divided between his duties as Musical Director of the Rochester Philharmonic Orchestra, recitals, radio and orchestral engagements. His fame as a pianist is world wide. **Jose Iturbi plays:** Reel No. 1: "Sevilla" by Albeniz—"Fantasia Impromptu" by Chopin. Reel No. 2: 3 pieces for the harpsichord by Jean Phillipe Rameau; on the piano, Liszt's Eleventh Hungarian Rhapsody.

COOLIDGE QUARTET, String Ensemble
Wm. Kroll, Violin; Nicolai Berezowsky, Violin; Nicholas Moldavan, Viola; Victor Gottlieb, Cello. "Unsurpassed by their contemporaries," says the Washington HERALD. This experienced group was featured with the famed Boston Symphony Orchestra and the Philadelphia Orchestra last year. In 1938-39 they presented 35 concerts in the Library of Congress in Washington and gave series of concerts at the San Francisco Exposition. Coolidge String Quartet plays: "Andante" from "String Quartet in E Flat Major" by Carl Von Dittersdorf, "Fugue" from Beethoven's "Quartet in C major," Opus 59, No. 3.

MILDRED DILLING, Harpist
The technical proficiency of this leading woman harpist is matched by a stage presence "subtly and charmingly in accord with the shining blond instrument at which she sits." The Pittsburgh Post-Gazette styles her "Foremost woman harpist—a real virtuoso." In the past five seasons she has appeared before 355 select audiences in America and Europe. Mildred Dilling plays: "The Fountain" by Zabel, "Fireflies" by H. Hasselmans, "March of the Men of Harlech"—Welsh Air—arranged by John Thomas.

VRONSKY AND BABIN, Duo-pianists
These brilliant young performers met while students at Berlin where they had come from their native Russia to study under Arthur Schnabel. Marrying, they at once renounced separate careers. The perfect accord of their tastes and temperament as recorded in their playing caused the New Yorker to exclaim, "They make their pianos sing like matched voices." Their work is "dazzling" and "thrilling" say newspaper critics. Vronsky and Babin play: Reel No. 1: "Waltz in A Flat" by Brahms—"Valse" by Arensky, "Flight of the Bumble Bee" by Rimsky-Korsakoff. Reel No. 2: Polovtsian Dances from Prince Igor by Barodin.

IGOR GORIN, Baritone

The magnificent voice of this well-known concert, motion picture and radio artist is presented in this film. Igor Gorin sings: "Largo Al Factotum" aria from "The Barber of Seville" by G. Rossini.

EMANUEL FEUERMANN, Cellist

Feuermann made his debut at 11, was teaching the 'cello at 17 at Cologne University. Successful American and world tours followed his debut with the Philharmonic Symphony of New York. Emanuel Feuermann plays: "Rondo Opus 94" by Anton Dvorak, "Spinning Song" by David Popper.

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Autumn.
Winter.
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3 reels. An all-diagram film for teaching purposes with a clear commentary, explaining the history of the Western World over two centuries, its commercial development, racial problems, colonial and imperial expansion, in relation to the lands that border the Atlantic Ocean, with emphasis on the United States. Rental $5.00.

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Bull Run, Gaines Mill, which gave its name to the battle of June 27, 1862.
Bull Run, old stone bridge crossed by armies.
Bull Run, Siege of Yorktown; earthworks built by Cornwallis, and used again.
Bull Run, the Walnut Grove Church.
Bull Run, Watts House, headquarters of General Porter.
Bull Run, Willis Church, around which raged the Battle of Glendale.
Chickamauga, Kelley House, where fighting for Rossville Road was severe.
Chickamauga, the Lee and Gordon Mill, still in use today.
Cooper's Iron Works, Georgia, destroyed during the War between the States.
General Sherman's headquarters, Savannah, Ga., at the time of the march from Atlanta to the sea.
Gettysburg, Lincoln delivering famous address; painting by Ransom.
Gettysburg, site of Lincoln's famous address.
Gettysburg Campaign, Trostle House, where fighting occurred.
Lookout Mountain, Moccasin Bend of the Tennessee River from Lookout Mountain.
Marker in North Carolina, showing where General Johnston surrendered to Sherman, ending the Civil War.
Original slave market, Louisville, Ga.
Parker's Store, Wilderness, Vt., where battle opened.
Pea Ridge Battlefield, Ozark Mountains, Ark.
Petersburg Siege, "Battle of the Crater," from a painting.
Petersburg Siege, famous mortar cannon "The Dictator".
Petersburg Siege, old Blandford Church, where 30,000 Confederates are buried.
Southern mansion, "Greenwood," St. Francisville, La.
Southern belles on piazza at "Hawthorne," Natchez, Miss.
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550 feet—15 minutes. Shows the enormous buildings on the surface as well as the "City of Streets" laid out underground in the world's largest Nickel mine.

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650 feet—18 minutes. The spectacular and vivid process by which raw ore is smelted into pure Nickel.

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350 feet—9 minutes. The first picture produced from an educational standpoint presenting the interesting steps in the refining of the valuable metal Nickel.

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Note: According to our contract with producers different pictures are available in limited territories only. Thus, before we can book these we must know in which territory you will show them.

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Blame It On Love, 42 min.
Army On Wheels, 27 min.
Assembly Lines of Defense, 30 min.
East of Bombay, 30 min.
Electronics at Work, 20 min.
Ever Since Eden, 40 min.
First Steps in First Aid, 25 min.
Industry for Health, 30 min.
On the Air, 25 min.
Ramparts We Build, 20 min.
Recalled to Life, 25 min.
This Amazing America, 37 min.
Time, 18 min.
Turret Lathes, 45 min.
Unfinished Rainbows, 38 min.
What Is Electricity, 20 min.
Wheels Across Africa, 30 min.
Wheels Across India, 36 min.
Years of Progress, 32 min.
Yesterday, Today and Tomorrow, 28 min.

Descriptions of these pictures furnished upon request.

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(Edgar Bergen Foundation)

Bed Making and Bed Baths, (Colored).
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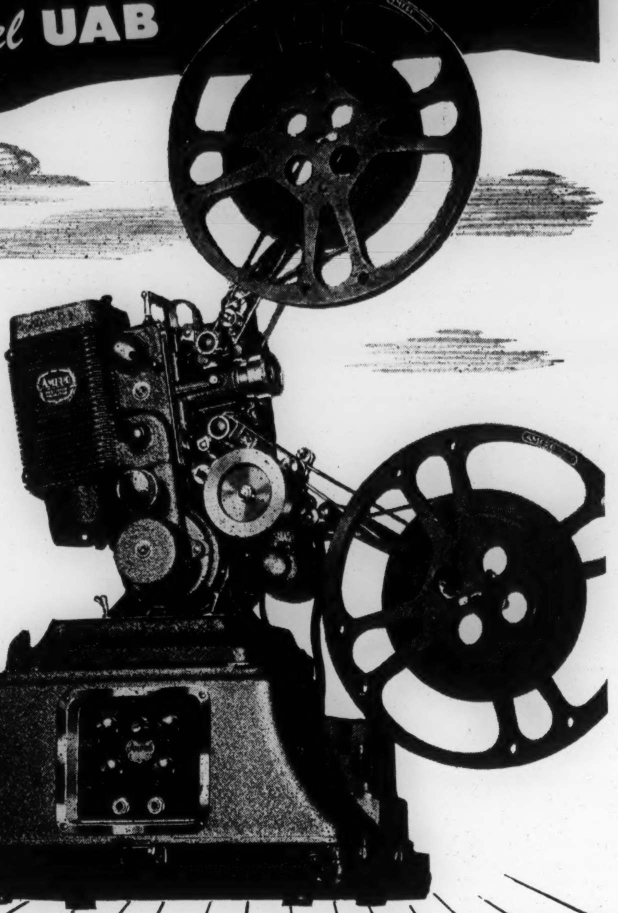

Hundreds of Ideal customers have adopted the new Amprosound Projectors. With these remarkable new models you can project sound pictures inexpensively — anywhere, and at a moment's notice! You simply set up the machine, plug it in and turn it on. No arms to fasten on, no assembling of pieces before operating. All controls are centralized on one convenient illuminated panel. Threading has been simplified so that it is as easy as an ordinary silent projector. Truly—the merest novice can operate these new units as easily as a radio.

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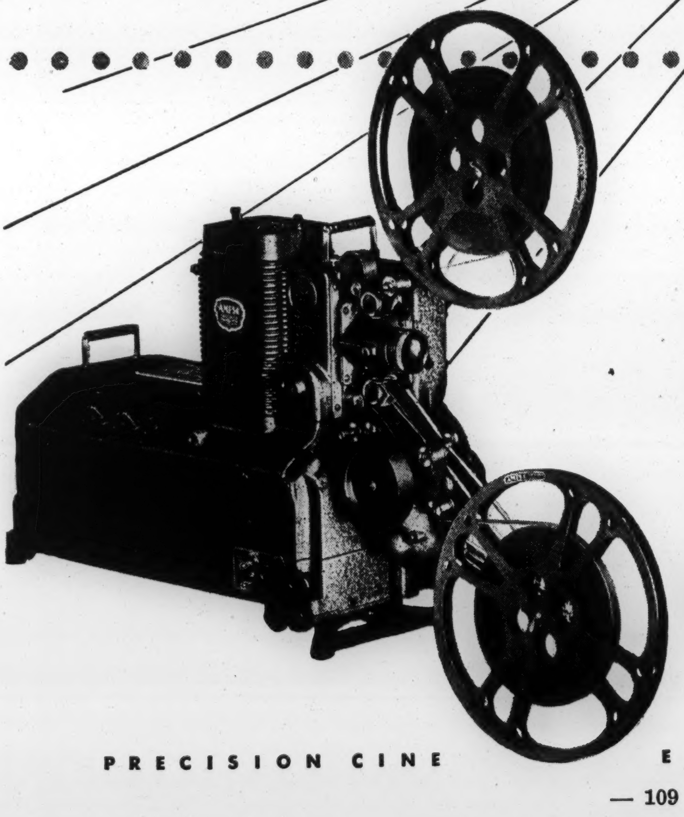
Model UAB Amprosound, same as UA except housed in permanently attached "blimp" case.



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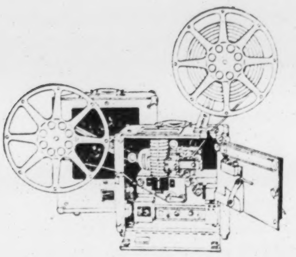

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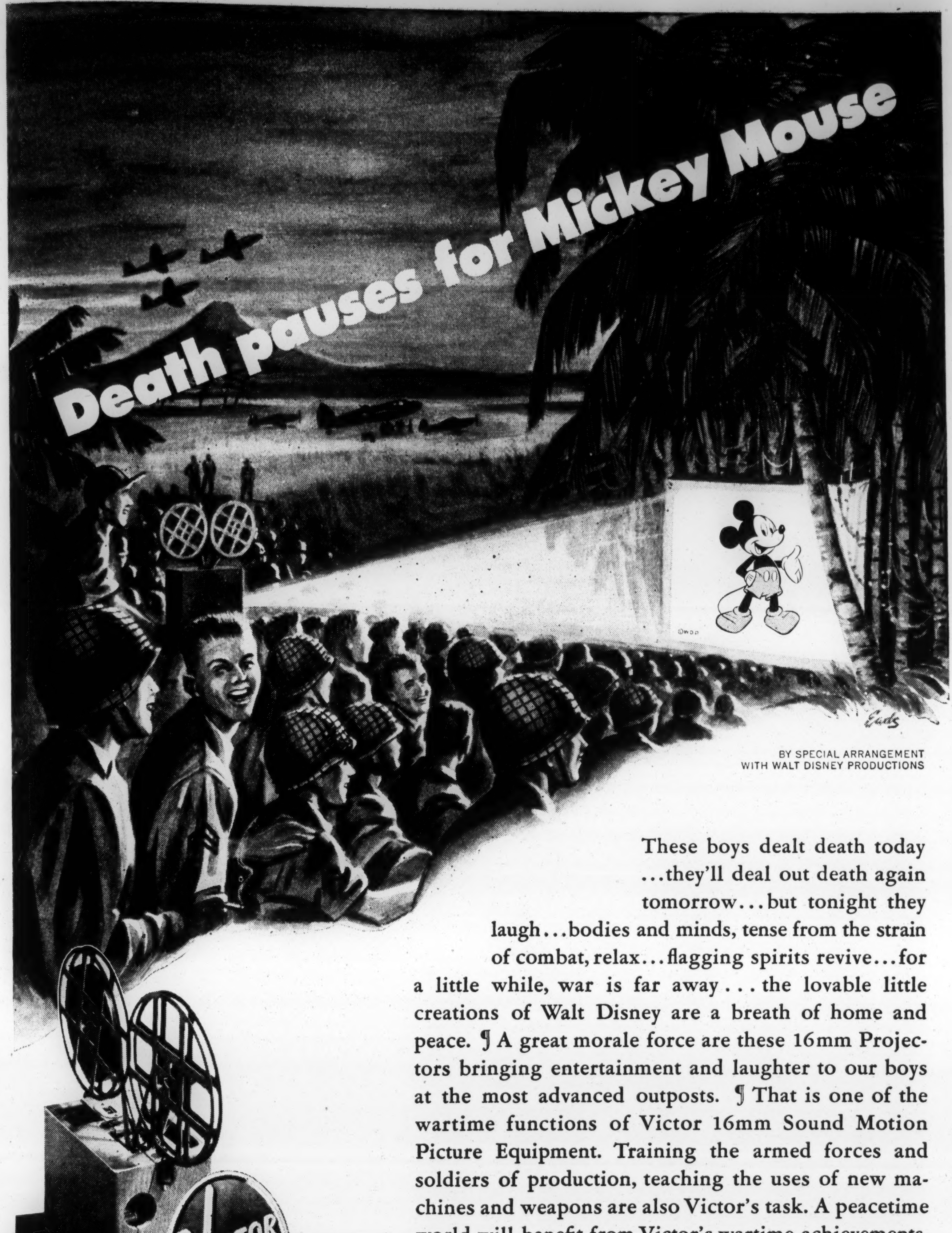
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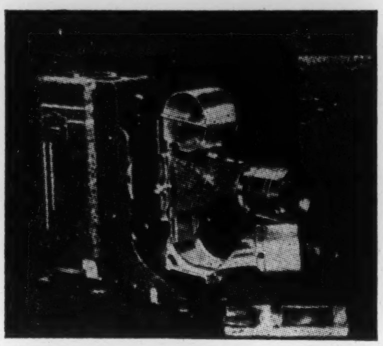

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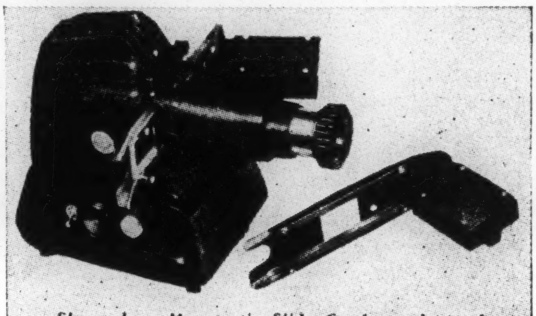

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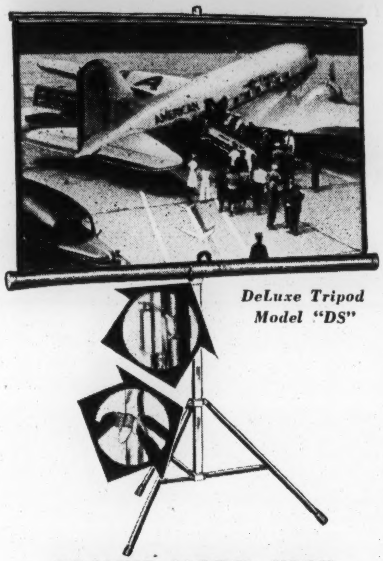

DeLuxe Tripod Model "DS"

DE LUXE MODEL "DS"

The easiest operating screen on the market today; has no set screws, spring plungers, other hand-operated locking devices to work loose. POSITIVE LOCKING IN ANY POSITION; assures perfect screen suspension. Engineered to achieve strength and rigidity with a minimum of weight. Square tube upright column and semi-tubular tripod legs prevent twist and sag.

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30" x 40"	11 lbs.	**$13.75**
40" x 40"	11½ lbs.	**17.75**
36" x 48"	12½ lbs.	**18.75**
48" x 48"	13½ lbs.	**21.50**
39" x 52"	14½ lbs.	**21.50**
52" x 52"	15½ lbs.	**21.95**
45" x 60"	17 lbs.	**27.50**
60" x 60"	18 lbs.	**32.00**
52" x 72"	20 lbs.	**33.00**

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A sure acting arrangement that permits instantaneous raising and lowering without the necessity of manipulating screws and bolts. So simple and easy to operate, a child can do it.

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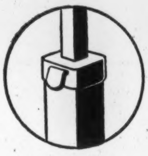
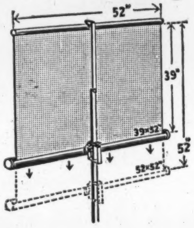


Instantly supports extension rod in any position. No set screws, spring plungers or intricate devices. Slight thumb pressure permits extension rod to be lowered to any position.

LEG RELEASE

Tripod legs may be opened or closed quickly. They support the screen in any position for wide spread or narrow spread without set screws or plungers. Light pressure on convenient lever closes legs instantaneously.

Convertible — Square to Oblong



Radiant square sized screens are convertible to oblong by merely raising screen to position indicated on back of screen. PLUS — Radiant Screens can be instantly and easily raised or lowered to any desired position without adjusting set screws or plungers. Portable DeLuxe Tripod Screens have extra strong electric welded square tubing. Metal parts are fully protected against corrosion.

Radiant Wall Screens

MODEL "W"

You can't buy a better wall type screen than the RADIANT Model W. Housed in a strong, yet lightweight steel case, the screen rolls down from its high-tension roller to present an ideal projection surface. The surface is glass beaded "Hy-Flect", the screen material that gives you the ultimate in brilliant images, critical sharpness and a surprisingly wide viewing angle. Laboratory tests reveal that this remarkable screen can't turn yellow or lose its brilliance. Radiant's own special surface preparation prevents edge curling as well as the tendency to sag. It's truly a "lifetime" screen.

Size	Net Weight	Price
30" x 40"	5½ lbs.	**$ 6.95**
40" x 40"	6 lbs.	**8.50**
36" x 48"	7 lbs.	**9.95**
48" x 48"	7 lbs.	**11.50**
39" x 52"	8 lbs.	**11.95**
52" x 52"	9 lbs.	**13.50**
45" x 60"	9 lbs.	**15.95**
60" x 60"	10 lbs.	**21.00**
52" x 72"	10½ lbs.	**20.50**
72" x 72"	11 lbs.	**31.00**
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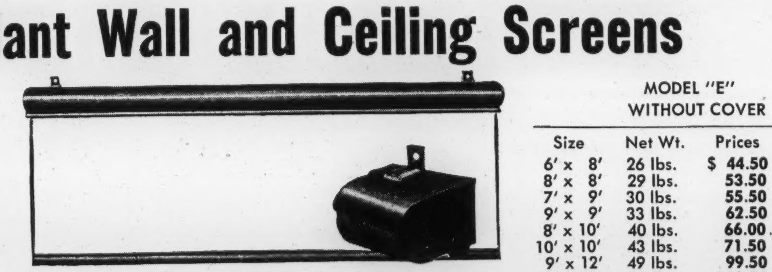
Radiant Wall and Ceiling Screens

Very strongly and durably made to give clear, brilliant reproduction for many years. Heavy duty rollers and extra-heavy adjustable brackets, welded to case mounted on backboard for suspension from wall, ceiling or tripods. The streamlined metal cover (optional) helps keep the screen clean; protects it from blows and accidental damage. Heavy duty construction insures longer satisfactory life. Extra brilliant "Hy-Flect" glass beaded surface. An outstanding success in Universities, Schools, Churches, Auditoriums, Training Centers, Clubs, Camps, etc.



Model "EC"

	MODEL "E" WITHOUT COVER		MODEL "EC" WITH COVER	
Size	Net Wt.	Prices	Net Wt.	Prices
6' x 8'	26 lbs.	$ 44.50	36 lbs.	$ 50.50
8' x 8'	29 lbs.	53.50	39 lbs.	62.50
7' x 9'	30 lbs.	55.50	42 lbs.	67.50
9' x 9'	33 lbs.	62.50	45 lbs.	74.50
8' x 10'	40 lbs.	66.00	53 lbs.	79.50
10' x 10'	43 lbs.	71.50	56 lbs.	84.50
9' x 12'	49 lbs.	99.50	64 lbs.	117.50
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16MM SILENT PICTURE CATALOGUE

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Football Thrills of 1940.
Football Thrills of 1941.

Football Thrills of 1942.
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Famous Fights No. 2.
Famous Fights No. 3.
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News Thrills 1943—Vol. III.
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West Point.
Battle for Tunisia.
Yanks Bomb Tokyo.
Bismarck Sea Victory.
Axis Smashed in Africa.
U. S. Carrier Fights.
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American Legion in N. Y. (1937).
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The Fly.
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HIS WONDERFUL CHANCE
5 reels. Rudolph Valentino.

HOME MAKERS
8 reels. Alice Joyce and Clive Brooks in a fine comedy drama of the domestic type.

HUMAN HEARTS
7 reels. House Peters in heavy melodrama.

IRRESISTIBLE LOVER (THE)
7 reels. This is a gay litle comedy starring Norman Kerry, Lois Moran and Arthur Lake.

LAST WARNING (THE)
8 reels. Laura La Plante in a thrilling story.

LISTEN LESTER
5 reels. Alex B. Francis and Louise Fazenda in a strong comedy drama.

LITTLE CHILD SHALL LEAD THEM (A)
6 reels. Semi-religious reform story. Featuring the child-actress Jane Mercer.

LITTLE DUCHESS (THE)
5 reels. Madge Evans in a beautiful story showing a child growing from poverty to riches.

LITTLE GIANT (THE)
7 reels. Glen Hunter in a story of laughs and sighs.

LOCAL GIRL MAKES GOOD
7 reels. Very, very, funny! Laura La Plante, Zasu Pitts and Tully Marshall .

LUCK
5 reels. Comedy drama, featuring Johnny Hines.

LUCRETIA LOMBARD
6 reels. Irene Rich, Norma Shearer, Monte Blue and Alex Francis. An Adventure story.

MIDNIGHT MESSAGE
5 reels. Comedy drama by H. H. Van Loone starring Johnny Fox.

MIDNIGHT FACES
5 reel. Hair-raising melodrama with Francis X. Bushman, Jr.

MISS BLUE BEARD
5 reels. Bebe Daniels, Raymond Griffith, Robert Frazer. Adaptation of Avery Hapwood's Broadway success.

ONE PUNCH O'DAY
6 reels. Fight picture with Billy Sullivan.

ONE WEEK OF LOVE
5 reels. Featuring Elaine Hammerstein and Conway Tearle. A romantic melodrama of Mexico and the Southwest.

PAINTING THE TOWN
6 reels. Comedy. Glenn Tryon, Patsy Ruth Miller.

PAIR OF SILK STOCKINGS (A)
5 reels. Constance Talmadge in an excellent comedy drama.

PAL O' MINE
5 reels. Featuring Irene Rich. Juliet, an opera singer, is compelled to support her husband, who has been seriously injured in an automobile accident.

PHANTOM OF THE NORTH
5 reels. Boris Karloff.

PINCH HITTER (THE)
4 reels. Charles Ray in an excellent baseball story.

POKER FACES
7 reels. Edward Everett Horton.

POWER OF THE PRESS (THE)
7 reels. Douglas Fairbanks, Jr. The cub reporters makes good.

PRINCE IN PLEDGE (A)
6 reels. From the novel "Waif of the Wreck."

PRIDE OF SUNSHINE ALLEY
5 reels. Kenneth McDonald in a dramatic story of a policeman.

RACING FOOL
5 reels. A racing story starring Reed Howes and Ruth Dwyer.

RAGGEDY ROSE
5 reels. With Mabel Normand and Max Davidson.

RETURN OF GREY WOLF (THE)
5 reels. Leader, the wolf dog.

SEA LION (THE)
5 reels. Hobart Bosworth in a thrilling whaling story.

SCHOOL DAYS
6 reels. Wesley Barry in a visualization of the imaginative dream of all children.

SECOND FIDDLE (THE)
5 reels. Featuring Glenn Hunter, Mary Astor, in a New England story, well acted.

SENSATION SEEKERS (THE)
7 reels. Billie Dove drama, with a thrilling shipwreck thriller.

SHADOW OF THE NORTH
5 reels. Rumanian-Greenland Expedition at the North Pole.

SHADOWS
7 reels. Lon Chaney, Walter Long, Marguerite De La Motte. A beautiful drama of a fishing village, based on the story of Wilbur D. Steele, "Cling Cling Chinaman."

SHAMROCK AND THE ROSE (THE)
6 reels. Mack Swain and Maurice Costello. Comedy drama.

SHANGHAI LADY
6 reels. Mary Nolan in a thrilling drama of Chinatown.

SILKS AND SADDLES
6 reels. Marion Nixon in a gripping story of the racetrack.

SISTER
7 reels. A heart interest story featuring Charles Winninger, Bette Davis and Slim Summerville.

SISTER'S LOVE (A)
7 reels. A heart interest story featuring Laura La Plante and Norman Kerry.

SKINNER'S DRESS SUIT
7 reels. With Reginald Denny and beautiful Laura La Plante. This epoch of a plodding office clerk and his adventures make an absorbing tale.

SKYSCRAPERS
7 reels. With Wm. Boyd, Sue Carol and an all star cast. A realistic thrilling film with events happening amongst the girders of a skyscraper.

SLOW AS LIGHTNING
5 reels. Kenneth L. McDonald in a fast moving comedy in which he play "hunches." From a backward boob he becomes an outstanding financier. Much action.

SMOKEY COMES THRU
5 reels. Sue Carol and Richard Walling head the cast of "flappers" and "shieks" in a "jazz age' story of 1928.

SOMEBODY'S MOTHER
6 reels. Fine heart-interest story. Mary Carr and Rex Lease.

SOUL OF THE BEAST
5 reels. Noah Beery, Colleen Landis and Madge Bellamy in an appealing story of the circus.

SPEED DEMON
5 reels. An adventure story with Kenneth McDonald, Peggy Montgomery and Clark Comstock. Races by auto and a Kentucky Derby bring many thrills.

SILENT SENTINEL
5 reels. Dog story.

SPIELER (THE)
7 reels. Alan Hale and Renee Adoree in a drama of carnival life.

STILL ALARM (THE)
6 reels. Comedy drama. William Russell.

STORM GIRL (THE)
5 reels. Peggy O'Day.

STRANGER OF THE HILLS
5 reels. Ethel Ritchie and Edward Coxen.

SKY RIDER
5 reels. Dog and Airplane story. Very thrilling.

SWEET ADELINE
7 reels. Charles Ray, Gertrude Olmstead and Frank Austin. A splendid Old Time Movie.

TEST OF DONALD NORTON
7 reels. George Walsh, Eugenia Gilbert and Tyrone Power, Sr. A story of the Hudson Bay Country.

THRILL SEEKERS
5 reels. Fast action picture.

TIGER ROSE
5 reels. Lenore Ulrich in a story of the frozen north, from stage success of the same name.

TILLIE'S PUNCTURED ROMANCE
5 reels. With Charles Chaplin and Marie Dressler.

TRIUMPH OF LOVE (THE)
7 reels. A meldrama. Mary Philbin, Norman Kerry, Betty Compson, Henry B. Walthall.

TROUBLE BUSTER
5 reels. Here we have another action comedy which you can't miss seeing.

TRY AND GET IT
5 reels. A comedy drama which will make you roll in laughter, with Bryant Washburn.

TWELVE-TEN MYSTERY
5 reels.

UNTAMED JUSTICE
6 reels.

UP THE LADDER
7 reels. Interesting story of success and failure of a young inventor. Starring Virginia Valli, Forrest Stanley, Marguerite Livingstone.

VALLEY OF HATE
5 reels. Wilfred Lucas.

VEILED ADVENTURE (THE)
5 reels. Comedy drama featuring Constance Talmadge and Harrison Ford.

VIRGIN OF STAMBOUL
6 reels. An adventure story. Priscilla Dean, Wallace Beery.

WAKEFIELD CASE
6 reels. Herbert Rawlinson.

WEBS OF STEEL
5 reels. Thrilling railroad melodrama with Helen Holmes.

WHITE SHEEP
7 reels. Hal Roach production. Glenn Tryon, Blanche Mehaffey, and Jack Gavin, with a Kansas backwoods setting, portraying the fighting Tyler family.

WHO'S YOUR FRIEND?
5 reels. Francis X. Bushman, Jr., Jimmy Aubrey, Patricia Palmer in a farce comedy. Many intriguing situations, but he finally wins the girl.

WIFE'S RELATIONS
6 reels. Ben Turpin.

WINNING THE FUTURITY
6 reels. Cullen Landis, Ernest Hilliard. An excellent "Black Beauty" story.

WISHING RING (THE)
5 reels. The beloved Alex Francis in one of his best characterizations.

WRONG MR. WRIGHT
7 reels. Jean Hersholt at Atlantic City.

YOU ARE GUILTY
5 reels. Tense melodrama featuring James Kirkwood, Doris Kenyon and Mary Carr.

THE FLYING FOOL
5 reels. Wandy Hawley , Gaston Glass.

APRIL FOOL
5 reels. Alexander Carr.

LOST EXPRESS (THE)
5 reels. Helen Holmes.

CALL OF THE WILDERNESS
5 reels. Dog story.

SAGE BRUSH LADY
5 reels. Eileen Sedgwick.

CONCEIT
5 reels.

HEADWINDS
6 reels. House Peters, Patsy Ruth Miller.

PEACOCK FAN
6 reels. Dorothy Dwan.

MARRY THE GIRL
6 reels. Barbara Bedford, Bob Ellis, Florence Turner.

MY LADY OF WHIMS
6 reels. Clara Bow.

SQUARE SHOULDERS
7 reels. Louis Waldheim, Junior Coughlan.

FAST WORKER (THE)
7 reels. Reginald Denny.

BIG NEWS
8 reels. Carole Lombard, Robt. Armstrong.

RENTAL RATES PER DAY

4 reelers—$2.50.
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8 reelers—$4.50.
9 reelers—$5.00.

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WESTERN FEATURES

Another Man's Boots. 5 reels.
Beyond All Odds. 5 reels. Francis Ford, Eileen Sedgwick.
Beyond the Trail. 5 reels. Jack Hoxie.
Back Fire. 5 reels. Jack Hoxie.
Barbed Wire. 5 reels. Jack Hoxie.
Better Man Wins (The). 5 reels. Pete Morrison.
Blazing Arrows (Lester Cuneo). 5 reels. Rental $3.00.
Branded A Bandit. 5 reels. Yakima Canute.
Calgary Stampede. 6 reels. Hoot Gibson.
Covered Trail (The). 5 reels
Desert Greed. 5 reels. Yakima Canute.
Don Quickshot of the Rio Grande 5 reels. Jack Hoxie.
Fighting Stallion (The). 5 reels.
Fangs of Fate.
Fighting Strain (The). 5 reels. Neil Hart.
Forbidden Trail. 5 reels. Another Jack Hoxie Thriller.
Four Footed Ranger. 5 reels. See the horse with the human brain perform the most marvel-feats of intelligence.
Galloping Through. 5 reels. Jack Hoxie.
Girl of the West. 5 reels. Eileen Sedgwick.
Golden Trail. 5 reels. Frank Austin and Dick Carter.
Hell Hounds of the Plains. 5 reels. Yakima Canute.
Hurricane Hal. Jack Meehan. 5 reels.
The Iron Rider. 5 reels. Yakima Canute.
King of the Herd. 6 reels. Raymond McKee shares honors with a wild horse, in a magnificent outdoor drama.
Lure of the Range. 5 reels. Dick Hatton.
No Man's Law. 7 reels. Hal Roach production. Barbara Kent, and Rex, the wild horse.
Old Oregon Trail (The). 5 reels. Jack Hoxie.
Outlaw Breaker (The). 5 reels. Yakima Canute.
Pioneer's Gold. 5 reels. Pete Morrison.
Pioneers of the West. 5 reels. Bill Mix.
Riders of the Law. 5 reels. Jack Hoxie.
Senor Americano. 6 reels. Ken Maynard, Kathryn Crawford.
Silver Spurs. 5 reels. Lester Cuneo.
Twisted Trails. 5 reels. Tom Mix
West Bound. 5 reels. J. B. Warner.
Wild Horse Canyon. 5 reels. With "Boy," the horse in a million. Lad, the Scotch shepherd dog and Yakima Canute.
Wolf Tracks. 5 reels. Jack Hoxie.
Flashing Steeds. 5 reels. Bill Patton.
Last Chance (The). 5 reels. Bill Patton.
Lucky Spur. 5 reels. Bill Patton.
King of Wild Horses. 5 reels. Edna Murphy, Leon Barry.
Riding for Life. 5 reels. Bob Reeves.
Thundering Steeds. 5 reels. Eileen Sedgwick.
Black Cyclone. 6 reels. Rex and Lady the Killer with Gwen Williams.

RENTAL RATES

5 reelers—$3.00
6 reelers—$3.50

Weekly Rates 2½ Times Daily Rates

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Squatter Rights.
On the High Card.
The Wild Catter.
When the Lad Came Home.
A Modern Lochinvar.
Trail's End.

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Hoot Gibson Rodeo
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In the Tall Grass—Edith Storey
Cactus Jim—Big Boy Williams
Black Orchid—Kathleen Williams
Lady of the Law—Texas Guinan
Movie Star Stampede (All Star)
Honey Maid Men—Franklin Farnum
Highlights—Texas Guinan
New Medicine Man—Indian
Riding for Vengeance—Franklin Farnum
Mr. Haywood Producer—Tom Mix
100% American—Lew Hern
Never Again—Tom Mix
Shooting Up the Movies—Tom Mix
When Pals Fall Out—Franklin Farnum
Cowboy Rajah—Franklin Farnum
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Texas Ed
Fighting Stranger
Speaker Sex
Devils Twin
Reckless Riders

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SERIAL SECTION

LIGHTNING HUTCH
10 episodes. 20 reels. Featuring Chas. Hutchinson. Action follows action so quickly as to leave the audience almost breathless.

TITLE OF CHAPTERS

1—The Conspiracy
2—Life or Liberty
3—The Deadly Discovery
4—In the Trap
5—The Impossible Escape
6—The Thousandth Chance
7—Mysterious Island
8—The Walls of Doom
9—The Unexpected Happens
10—The Women's Wit

Rental on Silent Serials $1.50 per Episode

MASTER MYSTERY (THE)
15 episodes. 31 reels. Featuring Houdini, the "great escape artist," in most astounding feats of magic that will mystify the sanest.

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OFFICER 444
10 two- reel episodes. This serial glorifies the American Policeman, and was filmed in cooperation with August Vollmer, the famous criminologist. Every episode is interesting from beginning to end, and it brings them back for ten successive weeks. At the same time, the film is especially suitable for schools and is also rather timely, because of the publicity now being given to the control of crime. This film is especially made to help this situation. Unlike many films, it does not glorify crime, or make one desirous of entering a criminal life, but just the reverse. It sends the audience away knowing that crime, under any circumstances does not pay. There is no unseemly situation of any kind in this picture, and we recommend it to churches, schools and clubs alike.

THE 10 EPISODES

1—Flying Squadron
2—Human Rats
3—Trapped
4—Gassed
5—Missing
6—Radio Ray
7—Death's Shadow
8—Jaws of Doom
9—Underground Trap
10—Justice

Rental $1.50 per Episode

POWER GOD (THE)
15 smashing episodes. 3 reels in first episode, 2 reels in each subsequent episode. This serial stars Ben Wilson and Neva Gerber. It is a fascinating story dealing with the efforts of unscrupulous power magnates to prevent an inventor from putting his invention on the market so that it will benefit humanity. The serial is complete with thrilling incidents, interspersed with comedy situations.

THE 15 EPISODES

1—Ring of Fate
2—Trapped
3—Living Dead
4—Black Shadows
5—Death Chamber
6—House of Peril
7—Hands of the Dark
8—59th Second
9—Perilous Waters
10—Bridge of Doom
11—Treachery
12—Storm's Lash
13—The Purloined Papers
14—The Flaming Menace
15—The Wages of Sin

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RANGE FIGHTER
10 Chapters, Ken Maynard. Western Thriller.

1—Range Fighter—3 reels
2—Trapped
3—Ambushed
4—Courting Death
5—House of Fate
6—Noose of Fate
7—Black Jacked
8—Pit of Despair
9—Over the Precipice
10—The Killer

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SON OF TARZAN
15 episodes. 31 reels. Edgar Rice Burrough's stories brought to life—full of thrilling adventures from beginning to end.

TITLE OF EPISODES

1—Call of the Jungle
2—Out of the Lion's Jaws
3—Girl of the Jungle
4—Sheik's Revenge
5—Pirate's Prey
6—Killer's Mate
7—Quest of the Killer
8—Coming of Tarzan
9—Kiss of the Beast
10—Tarzan Takes the Trail
11—Lure of the World
12—Meriem's Ride in the Night
13—Double Cross
14—Blazing Heath
15—Amazing Denoument

Rental $1.50 per Episode

FEARLESS
12 smashing episodes of two reels each. This is not an ordinary serial, but an exciting dog story which leaves the audience holding on to their seats at the end of each episode, and breathlessly waiting for the next episode.

TITLE OF CHAPTERS

1—The Wolf
2—Fangs of Vengeance
3—String of Diamonds
4—Dumb Romeo
5—Detective K-9
6—Love Fighter
7—The Silent Trailer
8—The Dog of Dogs
9—Dog Scents
10—Doc's Dog
11—Almost Human
12—The Thief Trapper

Rental $1.50 per Episode

WHEN ORDERING FILMS PLEASE LIST SUITABLE SUBSTITUTIONS

2-REEL COMEDIES

Baby Brothers—Our Gang.
Cow's Kimono—Our Gang.
Cradle Robbers—0ur Gang
Daddy Goes -Gruntin—Our Gang.
Dogs of War—Our Gang.
Every Man for Himself—Our Gang.
Glorious Fourth—Our Gang.
High Society—Our Gang.
Home Wreckers—Our Gang.
It's A Bear—Our Gang.
Olympic Games—Hal Roach Rascals.
One Wild Ride—Our Gang.
Quiet Street—Our Gang.
The Pickanniny—Our Gang.
Ringling's Rivals—Our Gang.
Saturday Morning—Our Gang.
Tell It To A Policeman—Our Gang.
The Big Show.
Snookum's Tooth.
Green Cat—Snub Pollard.
Laugh That Off.
Sky Plumber—Jimmy Finlayson.
Suffering Shakespeare.
Sherlock Sleuths.
Taxi For Two—Andy Clyde.
Cured in the Excitement—Billy Bevan.
Butter Fingers—Billy Bevans.
Smith's Catalina Boat Race—Raymond McGee.
Smith's Kindergarten—Raymond McGee.
Smith's Poly—Raymond McGee.
Bargain Hunt—Raymond McGee.
Hot Or Cold.
And George Did.
Arabian Nightmare.
Bad Boy—Chas. Chase.
Black and Blue.
Briny Boob.
Brown at Oxford.
Buster Don't Forget.
Buster's Nose Dive.
Caretaker's Daughter—Charlie Chase.
College Kiddoes—Eddie Quillan.
Daze of '49.
Fast Company.
Fast and Furious.
The Fighting Dude.
Fighting To Win.
Funny Face.
Howdy Duke.
Ask Grandma—Our Gang.
Innocent Husbands—Charlie Chase.
Long Fliv the King—Charlie Chase.
Lost In the Lurch.
Maid in Morocco—Lupino Lane.
Mighty Like A Moose—Charlie Chase.
Min Walks In Her Sleep.
The Movies.
Official Officers.
One Mama Man—Charlie Chase.
Open House.
Open Spaces.
Pink Elephants.
Reno Or Bust—Bobby Vernon.
Say It With Flowers.
Starvation Blue—Clyde Cook.
Stupid But Brave.
Tell 'Em Nothing—Charlie Chase.
'Twas Henry's Fault.
Two Arabian Sights.
Upper Cuts.
Wandering Waistlines.
Young Sherlock.
Are Scotchmen Tight—Neal Burns.
Heavy Seas—(Spat Family).
South of the North Pole—(Spat Family).
Back to the Woods—(Neal Burns)
Fool Proof—(Neal Burns).
Hot Water—(Neal Burns).
Getting Gertie's Goat—(Dorothy DeVore).
All Is Lost—Bobby Dunn).
Kidding Katie—(Dorothy DeVore).
Winter Has Came—(Dorothy DeVore).
Dumb Waiter—(Bobby Dunn).
Fake Alarm—(Bobby Dunn).
Hot Foot—(Bobby Dunn).
No Danger—(Bobby Dunn).
Unmounted Policeman—(Bobby Dunn).
On The Front Page—(Stan Laurel).
Should Men Walk Home—(Oliver Hardy).
Stick Around—(Babe Hardy).
Just A Minute—(Eddie Lyons).
Keep Moving—(Eddie Lyons).
Pardon Me—(Eddie Lyons).
Why Not Now—(Eddie Lyons).
Before the Public—(Snub Pollard).
Courtship of Miles Sandwich—(Snub Pollard).
Mystery Man—(Snub Pollard).
Wages of Tin—(Glen Tryon).
Two Time Mama—(Glen Tryon).
Beauty a la Mud—(Jimmie Adams).
Safe and Sane—(Jimmy Adams).
Corn Fed—(Bobby Vernon).
Plumb Crazy—(Bobby Vernon).
Hard Boiled Yeggs—(Billy West).
Line's Busy—(Billy West).
West Is West—(Billy West).
Are Golfers Cuckoo?
Battling Travers—(Dick Hatton).
Bombs and Brides—(Charles Murray and Louise Fazenda).
Campus Romeo—(Fatty Arbuckle).
Dixie Madcaps—(Lee Kids).
Dizzy Daddies—(Jimmie Findlayson).
Grandpa's Girl—(Jack Duffy).
Heave Ho—
Her First Flame—(Gale Henry)
Hick in Hollywood (A)—(Bray Studio).
His Darker Self—(Lloyd Hamilton).
Hold Still—
Horse Feathers—(Barney Google)
Isle of Sap—
Just a Husband.
Lunches and Punches—(Sid Smith)
Moonlight and Noses—(Clyde Cook).
Naughty Boy—(Lupino Lane).
Never Again—(Al St. John).
Not Wanted—(Billy Mason).
Roaring Love Affair (A).
Roars and Uproars—
Say It With Love—
Standing Pat—
Troopers Three—(Slim Summerville).
Vamping Babies—(Alice Ardel).
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Wife Tamers—(Lionel Barrymore).
Young King Cole—(Reginald Denny).

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They All Fall
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Dog Shy
His Wooden Wedding
Looking For Sally

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1-REEL COMEDIES

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Baby Stealers—(Our Gang)
Boarding House Frolics—(Our Gang)
July Daze—(Our Gang)
Lodge Night—(Our Gang)
Stand Pat—(Our Gang)
Summer Days—(Our Gang)
Telling Stories—(Our Gang)
Tin Soldiers—(Our Gang)
Try, Try Again—(Our Gang)
What A Trip—(Our Gang)
Cracked Wedding Bells—(Snub Pollard)
The Smile Wins—(Snub Pollard)
The Dippy Dentist—(Snub Pollard)
Take Next Car—(Paul Parrott)
Finger Prints—(Paul Parrott)
The Landlubber—(Paul Parrott)
Fire the Fireman—(Paul Parrott)
A Regular Pal—(Beatrice La Plante)
The Sandman—(Eddie Boland)
June Madness—(Eddie Boland)
Trolley Trouble—(Gaylord Lloyd)
Rough Seas—(Gaylord Lloyd)
Lucky Number—(Gaylord Lloyd)
Hurry West—(Eddie Boland)
Running Wild—(Eddie Boland)
The Big Game—(Snub Pollard)
Teaching the Teacher—(Snub Pollard)
Flip Flops—(Andy Clyde)
Uneasy Three—(Charlie Chase)
Harvest Hands—(Charlie Chase)
Bathing Beauties and Big Boobs (Larry Semon)
Cheer Up—(Cliff Bowes)
Go Easy—(Cliff Bowes)
Hot Feet—(Cliff Bowes)
It's A Gift—(Snub Pollard)
Jimmy's Dog Gone Luck
Mister Chump
No Fooling—(Cliff Bowes)
Run, Girl, Run
Dog Days
Here Comes the Circus
Fire Fighters—(Our Gang)
Kids & Kidnappers—(Our Gang)
Movie Makers—(Our Gang)
Mystery Makers—(Our Gang)
No Noise—(Our Gang)
Ringling's Rivals—(Our Gang)
Way Out West—(Our Gang)
Who's Afraid—(Our Gang)
Mickey's Battle—(Mickey McGuire)
Mickey's Nine—(Mickey McGuire)
Mickey's Wild West—(Mickey McGuire)
Horse Laffs—(Puppet Show)
Moon, The—(Puppet Show)
Toodle-OO—(Puppet Show)
Whiz, The Wooden Man—(Puppet Show)
Chimp's Adventure, The—(Monkey)

Circus Days
Dreamy Chinatown—(Monkey)
Fuzzy's Shopping Trip—(Monkey)
One Big Night—(Monkey)
School Pals—(Monkey)
All Wool—(Billy Engle, Earl Mohan)
Big Kick, The—(Billy Engle, Earl Mohan)
Bouncer, The—(Billy Engle)
Riders of the Kitchen Range—(Billy Engle, Earl Mohan)
Solid Ivory—(Billy Engle, Earl Mohan)
Are Parents Pickles—(Jimmy Finlayson)
Before Taking—(Jimmy Finlayson)
Chasing the Chaser—(Jimmy Finlayson)
Unfriendly Enemies—(Jimmy Finlayson)
Yes, Yes, Nanette—(Jimmy Finlayson)
Bone Dry Blue—(Billy Ruge)
Harem Scarem—(Billy Ruge)
His Watch Hund—(Billy Ruge)
Rattling The Bones—(Billy Ruge)
Aerial Jugglers
Artist's Muddle—(Geo. Clarke)
Big Show, The—(Kid's Circus)
Busy Bees—(Pathe)
Close Shave, A—(Jackie Dailey)
Fast Black—(Hal Roach)
Gobs of Fun & Baby Daze—(Jack Hailey)
Happy Heels—(Billy Dooley)
His Marriage Wow—(Harry Langdon)
Hold Everything—(Martha Sleeper)
How Weary Goes Wooing—(Tom Mix)
Irish Luck—(Jackie Dailey)
Kidding Uncle
Late Lamented—(Pathe)
Loose Change—(Jack Duffy)
Love and Kisses—(Alice Day)
Love Spats—(Jack Duffy)
Many Happy Returns—(Pathe)
Monkey Business—(Monkey)
Matrimonial Mess, A—(Jack Duffy)
Max's Dogs and Cats
New Ralgia—(Bobby Ray)
Nifty Nags—(Jack Duffy)
Non Skid Kid—(Pathe)
Oriental Hugs—(Billy Dooley)
Picking Peaches—(Harry Langdon)
Prince Pistachio—(Hal Roach)
Rich Relatives—(Herby & Smitty)
Saturday Afternoon—(Harry Langdon)
Save The Pieces—(Bobby Vernon)
Service A La Bunk—(Bobby Ray)
Smile Buttercup Smile—(Toots & Casper)
Sock Exchange—(Bobby Vernon)
Sure Mike—(Martha Sleeper, Eddie Borden)
Sweet Bye & Bye—(Eddie Boland)
Tol'able Romeo—(Hal Roach)
Too Many Relations—(Jackie Dailey)
Uppercuts—(Jack Duffy)
Vaudeville Movies
Whistling Lions—(Jimmy Parrot-Jobyna Ralston)
Why Men Go Wild—(Bobby Vernon)
Wide Open Faces—(Chas. Puffy)

Rental 75c Each

CHARLIE CHASE

All Wet.
Big Red Riding Hood
Jeffries, Jr.
Outdoor Pajamas.
Poor Fish.
Powder & Smoke.
Safe and Sound.
Sleuth (The).
Ten Minute Egg.
Young Oldfield.

Rental 75c Each

HANK MANN

An Eye for Figures.
Chased Out of Town.
Hopping the Bells.
In Hock.
Janitor (The).
Messenger (The).

Rental 75c Each

PAUL PARROT

Between Meals.
Don't Butt In.
Friday the 13th.
Golf Bug.
Hired and Fired.
Old War Horse.
Only Son The).
Paste and Paper
Pay the Cashier.
Post No Bills.
Shoot Straight.
Soft Pedal.
Uncovered Wagon.

Rental 75c Each

SNUB POLLARD

At the Ringside.
Big Idea (The).
Cash Customers.
Dear Old Pal.
Do Your Duty.
Dumb Bell.
Fresh Paint.
Friend Husband.
Fully Insured.
Get Busy.
Hale and Hearty.
It's a Joy.
Join the Circus.
Punch the Clock.
Some Baby.
Strictly Modern.

Rental 75c Each

Weekly Rate Two and One-half Times Daily Rate

OLD TIME MOVIES

1-REEL OLD TIME MOVIES

●

LAUGH, THRILL, CHEER AND SNEER

FUN AND FOND MEMORIES

●

OLD TIME MOVIES No. 1. 1 reel.

When Love Is Mocked; or, In the Train of Justice. Mary Pickford and Mack Sennett.

Turner's Challenge. Bill Hart and his Two Guns.

Yale-Harvard Football Game of 1914.

Rarin' to Go. Bill Hart.

OLD TIME MOVIES No. 2. 1 reel.

Dangerous Dude. Mary Pickford and Mack Sennett.

Struggle in the Steeple. With Frank Borzage as the worm.

Rheims Air Pageantry of 1908.

OLD TIME MOVIES No. 3. 1 reel.

Saved by a Gal; or, Daisy Does Her Darndest. With Bill (Two-Gun) Hart.

Fads and Fashions of 1900.

On the Avenue. Easter 1900.

Baffled by a Barmaid. Another Captain of the Royal Mounted Bites the Dust.

OLD TIME MOVIES No. 4. 1 reel.

The Great Train Robbery. This is the first motion picture ever made.

Hits of the Past (Chas. Chaplin)
Yesterday Lives Again.
Cowboys and Indians.
Cast Adrift and How (Arbuckle).
Gay Nineties.
Great Lover (Rudolph Valentino).
Rough Passage (Chas. Chaplin).
When You're Married (Chas. Chaplin).
Between Showers (Chas. Chaplin)
By the Sea (Chas. Chaplin).
Female Impersonator (Chas. Chaplin).
A Musical Tramp.
Some Nerve.
His New Profession.
Border Law (Old Fashioned Western).
His Favorite Pastime (Charlie Chaplin).
Film Johnny (Charlie Chaplin).
Blundering Boob (Chas. Chaplin)
Mabel's Busy Day (Charlie Chaplin).
Busted Hearts (Charlie Chaplin).
Gertie and the Dinosaur (1911).
Little Nemo (1912).
Savage Love (1929) (Mary Pickford).
Revenge on the Range.
Dealing For Daisy (Bill Hart).
His Double Life (Polly Moran, Mack Swain).
Sadder But Wiser (Henry B. Walthall).
May and December.
Only A Farmer's Daughter.
The Wilful Flirt.
That Villain Must Die.
Cross Eyed Love (Ben Turpin).

Rental $1.00 Each

2-REEL OLD TIME MOVIES

Millie, The Arcadian Maid (Mary Pickford and Lionel Barrymore)
Every Inch a Man (William Hart)
Caught in a Cabaret (Charlie Chaplin)
At Work (Charlie Chaplin)
His New Job (Charlie Chaplin)
The Trysting Place (Charlie Chaplin)
The Hero (Charlie Chaplin)
Stepping Out (Charlie Chaplin)
Tramp (Charlie Chaplin)
Shanghaied (Charlie Chaplin)
A Woman (Charlie Chaplin)
In the Bank (Charlie Chaplin)
The Knockout (Charlie Chaplin)
Broken Ways (Harry Carey)
Out of Control (Ben Turpin)
A Total Loss (Ben Turpin)
He Looked Crooked (Ben Turpin)
A Cheerful Liar (Ben Turpin)
Ben's Wild Dream (Ben Turpin)
Dough and Dynamite (Chaplin)

Rental $2.00 Each. Per Week $5.00.

3-REEL OLD TIME MOVIES

The Nickel Hopper (Mabel Normand in a Hal Roach Comedy)
Rental $3.00. $7.50 Per Week.

NICKELODEON NIGHTS

What Is It?

A *Nickelodeon Night* is simply an exhibition of antique silent films in the setting and atmosphere of the primitive American movie house where they flourished. *Nickelodeons* thrived throughout the country between 1903 and 1916.

The name was a combination of the popular term for a five-cent piece and the Greek word for "Theatre." It was housed in street-level stores, in lofts and other modest locations. *Generally, it consisted of little more than a collection of folding chairs, a projector, a screen and a piano.* Now that you know what it is, *here's what to do*:

Select a Location

Your show can be given profitably in a private home for a small audience, or in your organization headquarters for a larger group. If need be, you can rent a suitable hall for very little. *Taverns, hotels, night clubs and ball rooms* can use any spot where a screen may be set up.

Create the Mood

If tickets are to be sold, dodgers distributed, posters displayed or announcements mailed out, have them drawn, handlettered or printed in the decorative style of the early 1900's. At the showing proper, the films will create their own mood, but you can heighten their effect by other means suggested herein.

Plan Your Program

Give careful thought to the likes and dislikes of your membership and the rest of your potential audience. Make plans with a view to two solid hours of entertainment. Six to eight reels of films with a screening time of from 80 to 120 minutes. should be ample for this purpose. *Night clubs and similar institutions where beverages are sold can have a fifteen minute intermission between reels. This will keep the money for beverages rolling in.*

Music Is Important

Music is important but easy to provide. A competent amateur pianist with a knack for improvising will enrich your show considerably. An organ is even better and in an emergency a cleverly handled accordion will serve excellently.

*Song and "Gag" Slides***

No *Nickelodeon Night* can really reach the pinnacle of its possibilities without slides. With the worlds flashed on the screen, the *"life of the party"* in your group or organization will be glad to lead the audience in singing such time-honored ballads and ditties as *"After the Ball," "The Bowery"* and *"Good Bye Dolly Gray."* The "gag" slides will help divert your audience when there is neither a song nor a picture on the screen.

Presenting the Show

See that you hall and the entrance are properly decorated. Use discarded movie posters, photographs of stars, if you can get them, and plenty of bunting. With a little extra effort and no cost you can dress your ushers, ticket-taker and official host in costumes of the early 1900's complete with mustaches and bustles. Mustaches $1.00 per dozen or 15c each.

Arrange your piano so that the pianist can see the screen without blocking anyone else's view. *Have your screen film projector and slide projector set up well in advance so that you can start the show without amateurish delays which may tend to dispel the festive mood.* Try to keep the attention of your audience occupied from the moment they enter to the moment they leave. Soon after the doors are open start flashing "gag" slides on the screen. These might begin with *"Don't Spit on the Floor,"* continue with such atmospheric flashes as *"Don't Park Your Gum on Our Seat"* and, just before the lights go down, *"Please Remove Your Hats, Remember Those Behind You."*

The Order of the Show

Once the lights go down, the actual order of the show should be, more or less, as follows: A song slide, with soloist or pianist leading the audience; another if the response is sufficiently enthusiastic, and it probably will be; a "gag" slide, several one-reel films, a song slide, a two-reel film, and the remainder of your films. If you are using a projector capable of carrying only one reel at a time, the song and "gag" slides will serve to enliven the intervals between the changes of reels. To heighten the atmosphere and increase the profit of the occasion, you can sell peanuts, popcorn and other traditional tidbits that helped filmgoers of yesteryear survive the suspense and excitement.

Cost of Arrangement

Your only fixed costs are the rental of film, slides and screen. To this may be added the rental of a film projector if one is not available among your membership. Expenditures for a showing location, decorations and advertising must be determined by your own judgment, but these can always be kept well within modest limits. *The sale of refreshments will help to reduce your costs and you may find it possible to sell advertising slides to local merchants.* These would be flashed on your screen during the show. They can be prepared at small cost. *You can reduce the cost of film rental by booking a series of shows at one time.*

GAG SLIDES (Rental 10c each)

Don't Park Your Gum On Our Seat.
God Bless Your Children But Please Keep Them Quiet.
Keep Your Feet on the Floor. The Seats Were Made to Sit On.
Don't Spit on the Floor.
Good Night.
Just a Minute Please.
Please Remove Your Hats. Remember Those Behind You.
Don't Read the Title Out Loud. (Your neighbor went to school, too.)
Please Go Out Quietly. Don't Disturb the Sleepers.
Will the Couple in Row 24 Please Stop Necking?
Intermission.

If you have no stereopticon we can sell you film trailers at $1.00 each.

SONG SLIDE SETS (Rental 10c for Each Slide)

**Illustrations Only* *†Words Only*
‡Words and Illustrations

The numerals after each song indicate the number of slides.

*Memories—6.
*In the Shade of the Old Apple Tree—5.
*Down By the Old Mill Stream—5.
*I want to Go Back to That Tumble Down Shack—5.
‡After the Ball—6.
†Alexander's Rag Time Band—4.
†And the Green Grass Grew All Around—2.
‡Curse of An Aching Heart—4.
†Darling Nellie Gray—2.
‡Banks of the Wabash—2.
‡Bird in a Gilded Cage—3.
†The Bowery—1.
‡Down by the Old Mill Stream—8.
‡East Side, West Side—2.
†Goodnight Ladies—1.
†Hail, Hail, the Gang's All Here—1.
†Has Anybody Here Seen Kelly—2.
†K-K-Katy—2.
‡Let Me Call You Sweetheart—4.
†Little Brown Jug—2.
†Meet Me Tonight in Dreamland—1.
‡Oh How I Miss You Tonight—2.
†Oh Susannah—2.
†Polly Wolly Doodle—2.
‡School Days—4.
‡Shine On Harvest Moon—4.
†Show Me the Way to Go Home—2.
†Sweet Adeline—3.
†That Old Gang of Mine—2.
†Two Little Girls in Blue—4.
†Wait 'Till the Sun Shines, Nellie—2.
†When Good Fellows Get Together—1.
†When You and I Were Young Maggie—3.
‡Happy Days are Here Again—4.
‡Just a Song at Twilight—2.
‡Old Spinning Wheel—4.
‡On a Bicycle Built for Two—2.
‡Take Me Out to the Ball Game—2.
†Chinatown My Chinatown—4.
‡Darktown Strutter's Ball—4.
†E-Yip I-Addy I-Ay I-Ay—1.
†Goodbye Dolly Gray—2.
†Wabash Blues—4.
†When You Wore a Tulip—2.
†What's the Matter with Father—1.
‡Home Sweet Home—3.
‡Darling I Am Growing Old—3.
‡Oh It Ain't Goin' To Rain No More—2.
‡When It's Apple Blossom Time in Normandy—4.
†There's a Long Long Trail a Winding—4.
†Comin' Thru the Rye—2.
†There are Smiles—2.
†Auld Lang Syne—3.
‡Put on Your Old Gray Bonnet—2.
†When the Moon Comes Over the Mountain—4.
†In the Good Old Summer Time—1.
‡Memories—4.
‡She'll Be Comin' Round the Mountain—3.

All slides are 3¼x4 to be used in Standard size stereopticon.

CARTOONS

1-REEL AESOP FABLES

Barnyard Melody
Bugville College Days
Bugville Romance
Custard Pies
Faithful Pup
Jungle Fool
Fox Hunt
Woodchoppers
Ship Ahoy
Singing Saps
Sky Skippers
Presto Chango
The Mill Pond
House Cleaning Time

Rental 75c Each

CELEBRITY CARTOONS

Jack Frost
Aladdin's Lamp
Old Mother Hubbard
Pin Cushion Man
The King and the Tailor
Mary's Little Lamb

Rental 75c Each

POPEYE CARTOONS

The Carpenter
Best Man Wins
New Year's Party
Detective Jeep
Bull Tosser
Wow! Injuns
Goofy People
Busted Pipes
Good-Bye Forever
Good Manners
Spinachville
At the Carnival
Wagon Works
The Champ

Rental 75c Each

BETTY BOOP CARTOONS

Bed Time Story
Lunch Wagon
Magic Mirror
May Queen
Midgetville
The Fortune Teller
Flying to the Moon
Stopping the Show

Rental 75c Each

SELECTED CARTOONS

Forbidden Fruit
The Burglar
Knighthood
The Ghost
Treasure Island
Ancestors
Africa's Jungle
Strike Breaker
Sky Pilot
Mysterious Case

Rental 75c Each

FLIP THE FROG

Africa Squeaks
Jail Birds
Movie Mad
Stormy Seas
Village Barber (The)
Village Smitty (The)

Rental 75c Each

KIKO

At the Bat
Bear Facts
Big Fight (The)
Cleaned Out
Danger On Ice
Foxy Fox (The)
Hail the King
On the Scent
Ostrich Trouble
Red Hot Rhythm

Rental 75c Each

DONALD DUCK CARTOONS

Fast and Furious
Super Service
The Fireman
Donald Duck's Day Off
The Flying Trapeze
Donald's Mexican Romance
Donald the Skater

Rental 75c Each

DINKEY DOODLE CARTOONS

Babes in the Wood
Captain Kid
Cinderella
Giant Killer, The
House That Dinkey Built
Magic Rug
Peter Pan Handled
Robinson Crusoe
Three Bears, The
The Bad Man

Rental 75c Each

TERRYTOON CARTOONS

Beanstalk Jack
Bee and the Butterfly, The
Boy Meets Dog
Canine Comedy
Farmyard Whoopee
Grand Uproar
Holland Days
Just a Clown
Little Boy Blue
Moth and the Spider (The)
Mouse and the Lion (The)
Owl and the Pussycat (The)
Pandora
Pirate Ship
Rip Van Winkle
Robinson Crusoe
Romeo & Juliet
Tom, Tom, the Piper's Son
Wild West Daze

Rental 75c Each

MICKEY MOUSE

Chain Gang
Dizzy Pilot, The
Forward Pass
Hired and Fired
Hurdles & Hazards
Jungle Rhythm
Mad Dog
Mickey and the Dog Catcher
Mickey Plays Santa
Mickey's Wild Party
Opry House
Plowboy, The
Princess Charming
Uncle Tom's Cabin
Traffic Troubles
Barnyard Dance
Cannibal Capers
Pioneer Days
Fire Fighters
Out West
Mickey's Air Raid
High Speed Mickey
Six Shooter Mickey

Rental 75c Each

FELIX THE CAT

Felix Out of Luck
Felix Full of Fight
Felix Turns the Tide
Felix Goes to War
Felix Finds Out
Felix Revolts
Felix the Cat Minds the Kids
Eats Are West
Ghost Breaker, The
Pals
Land of Fancy
Felix Wakes Up
Felix Ducks His Duty
Felix in Pedegreedy
Felix on the Farm
One Good Turn
Oceantics
Forty Winks
Stars in Stripes

Rental 75c Each

CHILDREN'S CARTOONS

In Both Color and Black and White

Little Black Sambo
Headless Horseman
Sinbad the Sailor
Big Black Wolf
Dick Whittington's Cat
Puss in Boots

Rental: Black and White $1.00 Each. Color $2.00 Each

MUTT AND JEFF

Accidents Won't Happen
Big Swim, The
Bombs and Bums
Doggone
Invisible Revenge
Lots of Water
Mixing in Mexico
Oceans of Trouble
Playing With Fire
Set 'Em Up Again
Skating Instructors
Ups and Downs
Where Am I?

Rental 75c Each

MISCELLANEOUS CARTOONS

Africa Squeaks (Flip the Frog)
Bonzo in the Army (Dog)
El Toreador (Silly Symphony)
Fido the Dog Director
Foolish Frolics (Silly Symphony)
Goofy Golf (Meany-Miney-Moe)
Hello and Behold (Toonerville Trolley)
In Bonzoo (Dog)
In Old Madrid (Silly Symphony)
Mere Maids (Marty Monk)
Merry Dwarfs (Silly Symphony)
Mexicalla Lilly
Sketchograph (Circus)
Softball Game (Oswald)
Trouble Galore
Uneasy Money
Four Musicians of Bremen (SS)
Midnight in a Toyshop (SS)
Night (Silly Symphony)
Skeleton Dance (Silly Symphony)
Springtime (Silly Symphony)
Jail Breakers
King of Bugs
Noah Knew His Ark
Gypped in Egypt
Toytown Tale
Story of Cinderella
Brownie Bucks the Jungle

Rental 75c Each

1-REEL CARTOONS IN NATURAL COLOR

Jack Frost
Aladdin's Lamp
Old Mother Hubbard
Pin Cushion Man
The King and the Tailor
Mary's Little Lamb

Rental $1.50 Each

CHRISTMAS CARTOONS AND FEATURETTES

Christmas the World Over
Night Before Christmas
Christmas Time in Toyland
(Actual pictures, not a cartoon)
Santa Claus Story
Merry Christmas
Christmas Cartoon
Christmas Toy Shop

Rental In December $1.50 Rest of Year $0.75

8MM SILENT PICTURE CATALOGUE

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8MM SILENT PICTURE

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FEATURES

White Sheep. Western comedy drama, with Glen Tryon. 7 reels.

Thrill Seekers. Fast moving action story for mature audiences. 5 reels.

Raggedy Rose. Delightful comedy drama with Mabel Normand. 5 reels.

Battling Orioles. Glenn Tryon slambang comedy, for young or old. 6 reels.

Prince in Pledge. Outdoor adventure drama, from story of the "Waif in the Wreck." 6 reels.

The Cyclone Cavalier. Adventure and action in South America, featuring Reed Howes. 5 reels.

Call of the Klondike. Gripping drama of gold rush days. 6 reels.

Rental, 5 Reelers $2.50. 6 Reelers $3.00.

2-REEL 8MM COMEDIES

Mysterious Mystery (Our Gang)
Flying Elephants (Laurel and Hardy)
Do Detectives Think? (Laurel and Hardy)
Hick in Hollywood
The Champeen (Our Gang)
Daze of '49
Harem Scarem (Sid Smith Comedy)
Truthful Liar (Will Rogers)
Going to Congress (Will Rogers)
The Old Sea Dog (Snub Pollard)
Crazy Like a Fox (Charlie Chase)
The Candy Kid (Billy West)
The Handy Man (Billy West)
Tailoring
Smile Buttercup Smile

Wages of Tin. Glenn Tryon, Blanche Mehaffey.

Where Am I? Snub Pollard.

Sold at Auction. Paul Parrott.

The Mystery Man. Snub Pollard, Jimmy Finlayson.

45 Minutes From Hollywood. Jimmy Finlayson.

Moonlight and Noses. Clyde Cook, Fay Wray.

What's the World Coming To? Clyde Cook, Jimmy Finlayson.

Mickey's Movies. Mickey McGuire.

Rental $1.00

1-REEL HAL ROACH COMEDIES

All Wet (Charlie Chase)
Outdoor Pajamas (Charlie Chase)
Between Meals (Paul Parrot)
Don't Butt In (Paul Parrot)
Friday the 13th (Paul Parrot)
Hired and Fired (Paul Parrot)
Old War Horse (Paul Parrot)
Only Son (The) (Paul Parrot)
Pay the Cashier (Paul Parrot)
Soft Pedal (Paul Parrot)
Do Your Duty (Snub Pollard)
Dear Old Pal (Snub Pollard)
Dumb Bell (Snub Pollard)
Friend Husband (Snub Pollard)
Fully Insured (Snub Pollard)
Hale and Hearty (Snub Pollard)
It's a Joy (Snub Pollard)
Punch the Clock (Snub Pollard)
Are Parents Pickles (Jimmy Finlayson)
Chasing the Chaser (Jimmy Finlayson)
Unfriendly Enemies (Jimmy Finlayson)
Yes, Yes, Nanette (Jimmy Finlayson)
Good Morning, Judge (Pathe)
Many Happy Returns (Pathe)
Non Skid Kid (Pathe)
The Bouncer (Billy Engle)
Solid Ivory (Earl Mohan)
Stepping Out
Sure Mike (Martha Sleeper)
Sweet Bye and Bye (Eddie Boland)
Tolable Romeo (Frank Butler)
Whistling Lions (Jimmy Parrot)

Rental 50c Each

CHRISTIE COMEDIES

ONE REEL EACH

Out West (Jimmy Adams)
Beauty a la Mud (Jimmy Adams)
Hoot Man (Bobby Vernon)
Slick Slickers (Neal Burns)
Uppercuts (Jack Duffy)
Chicken Feathers (Jack Duffy)
A Briny Boob (Billy Dooley)
Sailor Beware (Billy Dooley)
Duck Out (Bobby Vernon)
Tie That Bull (Bobby Vernon)
Long Hose (Jack Duffy)
Nifty Numbers (Francis Lee and Billy Engle)

Rental 50c Each

MISCELLANEOUS 1-REEL COMEDIES

Any Day in Hollywood
Chimp's Adventure (The)
Circus Days (Our Gang)
Millionaire Hobo (Bill Murray)
Strictly Modern
New Balgia (Bobby Ray)
Turkey Trouble (Our Gang)
Service Ala Bunk (Bobby Ray)
Here Comes the Circus

Rental 50c Each

HISTORIC NEWS

News Parade of 1937
News Parade of 1938
News Parade of 1939
News Parade of 1940
News Parade of 1941
News Parade of the Year 1942
Super Thrills in the News
Inauguration of F. D. Roosevelt for the Third Term
King George and Queen Elizabeth
America's Call to Arms
British Commandos in Action
British-Greek Victories
Germany Invades Austria
Graf Spee Scuttled
Japs Bomb U. S. A.
Lightning War
MacArthur-Manila Bombed
War in China
War in Europe
Why Hitler?
American Legion in N. Y.—1937
American Legion in Los Angeles—1938
American Legion in Chicago—1939
Pearl Harbor—Normandie Burns
Russia Stops Hitler
U. S. Navy Blasts Marshall Island
Bombs Over Europe
Midway and Coral Sea Battles
Washington in War Time
Fight for Egypt

Rental 50c Each

SPORTS

Bears Will Be Bears (Hunting)
Big Fish
Bowling Aces
Camera Thrills in Wildest Africa
Dog Show
Famous Heavyweight Fights
Football 1938
Football Thrills of 1939
Football Thrills of 1940
Football 1941
Football Thrills of 1942
Fresh Water Fishing
How to Play Golf (By Bobby Jones)
Ice Carnival
Track Meet Thrills
Football Thrills 1943
Joe Louis vs Buddy Baer and Abe Simon
Joe Louis vs Billy Conn and Buddy Baer
Ride 'Em Cowboy
Sea Going Thrills
Ski Revels
Snow Thrills
Sock
Sport Spellbinders
Sports Parade of 1939
Swimming and Diving Aces
Thrill a Second
Water Sports
Winter Carnival
Wild Elephant Roundup
The Coyote (Hunting with Gun and Hounds)

Rental 50c Each

TRAVEL AND GEOGRAPHY

African Pygmy Thrills
America's High Spots
Arctic Thrills
Bali
Banff—Lake Louise
Bombing of Panay
California Picture Book
Canada's High Spots
Coney Island
Dynamic New York
Exotic Egypt
Fun in Florida
Golden Gate City
Havana Holiday
Hawaii, Land of Enchantment
Ireland
Land of the Incas
London
Mexico
Modern Rome
Mystic India
New York, the Wonder City
Old Spain
Palestine
Paris, the Beautiful
Sahara
San Francisco World's Fair
Scotland
South America
Strange Africa
Venice the Magnificent
Washington, D. C.
Wings Over World Wonders
Yellowstone Magic
Yosemite

Rental 50c Each

SEE SERIES

ISSUE 1. Hollywood movie lions perform parachuting from blimps. Bathing beauties—speed and sail boat thrills—night surf riding with flaming torches.

ISSUE 2. Modern Dianas. Speed kings on motor-bikes—Oregon Indians fish ancient way—Granfather's bike ride—dog antics—mother nurses 14 puppies.

ISSUE 3. Racing turtles—Pandas from Tibet—stunting hippos—tomorrow's ballerinas—plane takes off from auto—Japanese fire walkers—daredevils perform in mid-air.

Issue 4. Fly-weight champions—army tanks perform—picnic in monkey land—performing chimpanzees and lions—human cannon balls.

ISSUE 5. Motorbikes do parlor tricks. Girls leap through flames. Lions ride surfboards. Big brown bear family does tricks. Angry seas on wild rampage.

ISSUE 6. Modern William Tell—Chimp antics—daredevil jump from motorboat to glider. Wings over Mt. Lassen—Philippine volcano in violent eruption.

Rental 50c Each

EDUCATIONAL AND MISCELLANEOUS

ONE REEL

Animal Oddities
Baby Mosquitoes—Spiders
Boulder Dam
Daredevils of the Air
Day at the Zoo
Evolution of a Butterfly—The Fly
Movies' Greatest Headlines
Navajo Night Witch
Clyde Beatty's Animal Thrills
Three Little Bruins in the Woods
Primitive Indians of the Painted Desert
Quintuplets (Dionne)
Rounding Up the Bandits
Wild Life on the Desert of Our Southwest
Wild Animals of the Colorado Desert

Rental 50c Each

RELIGIOUS FEATURES AND FEATURETTES

WAR SUBJECTS

Victory in Sicily
West Point
Battle of Tunisia
Yanks Bomb Tokyo
Bismarck Sea Victory
Axis Smashed in Africa
Yanks Invade Africa
U. S. Carrier Fights
Fighting U. S. Marines
Italy Surrenders
News Parade 1943
U. S. Marines Capture Tarawa
Salute to the Navy
Yanks Invade the Marshalls
Fight for Rome—Russia's Smashing Offensive
Yanks Smash Truk
Eruption of Mt. Vesuvius

Rental 50c Each

KIKO CARTOONS

At the Bat
Bear Facts
Big Fight
Cleaned Out
Danger On Ice
The Foxy Fox
Hail The King
On the Scent
Ostrich Troubles
Red Hot Rhythm

50c Per Reel

CHILDREN DRAMAS

ONE REEL EACH

On the Tarzan Set
Toy Shop Review
Let's Paint
The Little Knight
The Little Defender

Rental 50c Each

OLD TIME MOVIES

Cast Adrift and How
Gay Nineties
Border Law
Cowboys and Indians
Yesterday Lives Again
Revenge on the Range

Rental 50c Each

CARTOONS IN NATURAL COLORS

Jack Frost
Aladdin's Lamp
Old Mother Hubbard
Pin Cushion Man
The King and the Tailor
Mary's Little Lamb

Rental $1.00 Each

CHRISTMAS SUBJECTS

Christmas Around the World
Christmas Time in Toyland
Santa Claus Story
Christmas Cartoon

Rental $1.00 Each

CHILDREN'S CARTOONS

Little Black Sambo
Headless Horsemen
Sinbad the Sailor
Big Bad Wolf
Dick Whittington's Cat
Puss in Boots

Rental 50c Each

TERRY TOON CARTOONS

Bean Stalk Jack
Grand Uproar
Holland Days
Just a Clown
Pandora
Rip Van Winkle
Little Boy Blue
Romeo and Juliet
The Pirate Ship
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Hurdles and Hazards
Jungle Rhythm
Mickey's Mad Dog and Dog Catcher
Mickey Plays Santa
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Pioneer Days
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A Message from

BERTRAM WILLOUGHBY

To the Thousands of Customers All Over the United States, who have helped make IDEAL PICTURES CORPORATION the Success That It Is

●

Dear Friends:

For 25 years, it has been my duty as well as my pleasure to serve you with the very best non-theatrical motion pictures that the market has provided. During these years, you have become my friends, even though I have not met many of you personally.

Since Pearl Harbor, I have not always been able to give you all of the services associated with the name "Ideal"; services you have been entitled to expect. In many cases we have not been able to obtain the pictures on the date we contracted for. In good faith we have advertised these pictures, and their failure to arrive on time has been inconvenient to you, and humiliating to us. But raw film stock has gone to war. Only a small fraction of the normal quantity has been available for our use. We have had a constant turn-over in our help. Many of our very best boys are at the various fighting fronts. One of them has been killed in action. Thus we feel that you, our customers and friends, will bear with us during these trying times. We greatly appreciate your continued patronage. We all know that a speedy victory is the most important thing in the world today. That victory is coming we are certain. In fact, it may be here before this catalogue is released. With victory there will be a return to normal. We are now making our post-war plans so that with the coming of victory there will be a return to 100% service, which has always been Ideal's aim.

Sincerely yours

Bertram Willoughby

P.S.
The R.K.O.'s and Universal Films listed in this catalogue are made available by special arrangements with Walter O. Gutlohn, Inc., Exclusive National Distributors.

As this Catalogue goes to press there is some doubt about the new P.R.C.s, listed on page 24, being released this year. We suggest that our customers who are interested in these pictures shall contact our nearest office for latest information. B.W.

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Printed in U.S.A.

PICTURES of the Month

INDUSTRY MEETS WAR PROBLEMS WITH VISUALS

PRODUCTION RECORD of the month was set by Castle Films in bringing 16mm. sound prints of the *Invasion of Fortress Europe* and the *Fall of Rome* to war industries and U. S. audiences everywhere through this distributor's nationwide network of dealers. Footage was edited, prints made and delivered two weeks after D-Day! British Information Services are also providing a 16mm. sound version on the invasion, its title: *D-Day.*

Industry's own records of production went into many new company films during the period: In pictures like *The Strength Unseen* (International Harvester), *Flight Log* (Shell), *All Out for Victory* (Firestone), *Combat Team* (Chance Vought), and *When Johnny Comes Marching Home* (Socony-Vacuum), industry's war job and its realistic postwar attitude toward the good results of worker-management cooperation was accurately portrayed.

PICTURES SERVE PUBLIC, TOO

Insurance companies like Metropolitan Life and the Aetna Life Affiliated Companies made other noteworthy contributions in pictures available to the general public: Aetna's three films on gardening and canning—*How to Plan a Victory Vegetable Garden, Summer Care of the Victory Garden* and the timely, *Preserving the Victory Garden Crop* showed what films might do in the public service. Related subjects still current in this field were *You Can, Too* (Ball Brothers via Castle Distributors) and *Canning the Victory Crop* (last year's production for Good Housekeeping Magazine.

"Northern Illinois Farm Life" produced for the Public Service Company of Northern Illinois by Chicago Film Studios shows how farmers can overcome wartime handicaps through inventiveness. In this scene the farmer is using a home made seed innoculator. The film is being widely requested by other utility companies.

Among industries, the rubber companies were well represented: titles like *Synthetic Rubber* (Goodyear) *The Alaska Highway* (Goodyear) and *Rubber Goes to War* (U. S. Rubber) were either new or currently active in the field of distribution. Timken's *Keep 'Em Rolling*, National Dairy's *Secret Weapon*, a film on nutrition, and *Women of Steel*, the Republic Steel subject on women at work in this war industry were also being widely shown during the month.

◆ *Proving Ground*, a full-length industrial production, had a recent press premiere in New York City under sponsorship of its sponsors, the Celanese Celluloid Corporation. Packed with ideas for postwar planners, the film depicted the part being played by lumarith, a Celanese plastic, in packaging war materials. Several scenes showed actual application of packaging innovations developed by the industry in wartime, innovations which have withstood the difficulties of global war.

Demonstration of the possibilities of carrying over many of these developments to peacetime use was the production's primary purpose. Among such developments were a simple operation for hermetically sealing packages, new lumarith containers of many sizes and shapes, lumarith foil used as a protective wrapper, and cellulose acetate drinking straws.

◆ An addition to the growing number of motion pictures in the field of health education is *Eyes for Tomorrow*, a two-reel film, produced by the Emerson Yorke Studio for the National Society for the Prevention of Blindness, 1790 Broadway, New York City. Alois Havrilla is the commentator for the picture.

Eyes for Tomorrow stresses good general health as a prerequisite for good eyesight. It also deals with the importance of prenatal care as a means of reducing the amount of blindness caused by syphilis and gonorrhea; the conservation of vision among school children; the use of sight-saving classes for children with seriously defective vision; the necessity for regular eye examinations; methods of treating glaucoma and trachoma; and the eye hazards of industry.

The film, in 16 and 35 mm., will be distributed in the United States by the National Society for the Prevention of Blindness.

SYMBOLIC OF "WOMEN OF STEEL" from the Republic Steel Company picture of that name are the welder (Lee Dunning); tractor operator (Edith Stoner) and woman labor foreman (Mrs. Elizabeth Varkony). This war informational subject by Wilding has received wide attention.

New and Current OWI War Subjects

CARE OF CHILDREN OF WORKING MOTHERS — *(20 minutes).* Shows working mothers what a child care center is and how it operates. *Sponsor:* Office of Civilian Defense.

FOOD AND MAGIC — *(10 minutes).* Food is the weapon in our hands on the home front. It is necessary to produce more, conserve, share, play square and place the war effort first. *Sponsor:* U. S. Dept. of Agriculture.

IS YOUR TRIP NECESSARY?—*(3 minutes).* This is a *Don't Travel Trailer* to be attached to appropriate programs. It is a message to the American public to avoid unnecessary travel. *Sponsor:* Office of Defense Transportation.

POLAND FOREVER—*(22 minutes).* History of Poland from the 15th Century to the present; outlines events leading up to Poland's invasion and shows how the youth of Poland are fighting for its freedom. *Sponsor:* Polish Information Center.

PRICES UNLIMITED — *(10 minutes).* This film shows what would happen if rationing and price controls were lifted. *Sponsor:* Office of Price Administration.

ALL OUT FOR VICTORY—*(22 minutes).* Shows the conversion of peace time industries to war industries and stresses the fact that it takes both the sweat of workers and the blood of soldiers to win the war. *Sponsor:* Firestone Tire & Rubber Company.

CHALLENGE TO DEMOCRACY—*(11 minutes).* A report on the evacuation of the Japs from the West Coast and the manner in which resulting problems were met. *Sponsor:* War Relocation Authority.

CORSICA—*(10 minutes).* French and Allies landing in Corsica. Shows a people at war. Intimate glimpses of the habits and customs of the native people. *Sponsor:* Free French Press.

IT'S YOUR WAR TOO—*(11 minutes).* One of the most outstanding films on women in uniform. General Marshall pays a short effective tribute to the WACs for their outstanding work and points to the need for more women to join the ranks. *Sponsor:* War Department.

THE NEGRO SOLDIER—*(45 minutes).* Contribution of the Negro in all of the wars of the Republic from the War of Independence through the present war. *Sponsor:* War Department.

Fifth War Loan Specials

REPORTS FROM THE AAF—*(9 minutes)* The RAF and the 8th Air Force on a bombing flight over France and Germany. The 5th Air Force report from New Guinea. Shows the remarkable AAF maintenance and repair installation in Port Moresby, New Guinea. *Sponsors:* Treasury-War Department.

REPORT FROM THE BEACHHEAD—*(10 minutes).* Shows the established beachhead at Anzio. Portrays the hardships endured by our men and stresses the fact that no matter how costly, no deal will be made with the Axis powers until Victory is ours. *Sponsors:* Treasury-War Department.

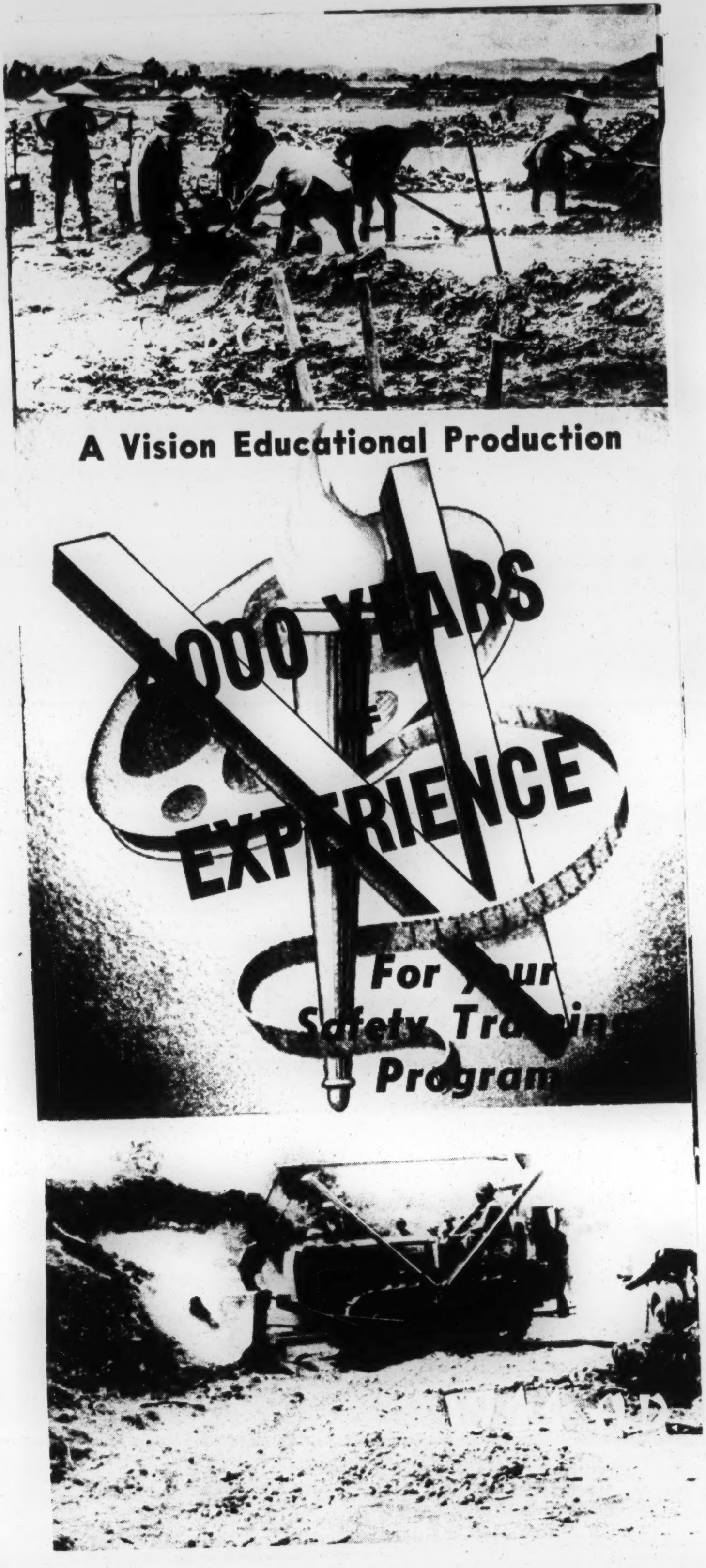
WHAT MAKES A BATTLE—*(14 minutes).* A masterpiece of strategy was the Battle of the Marshall Islands when forces of land, sea and air had to be coordinated to effect success. *Sponsors:* Treasury-War Department.

WAR BOND TRAILER—*(3 minutes).* An urgent message for the Fifth War Loan Drive. Will be attached to all subjects booked and left on through the Drive which ends on July 12. *Sponsors:* Treasury-War Department.

How to Get These Films

All of the OWI subjects listed above are available in 16mm. sound-on-film through nationwide distribution facilities. Many of these depositories are listed on Page 42 of this issue; see your visual dealer in your own community for free loan of any subjects listed (handling charge of 50c per title only).

Earlier subjects are also still available. These provide excellent fare for adult and youth audiences, open air events and other seasonal affairs.



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of

EXPERIENCE

For your
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Program

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Plant Safety thru Good Housekeeping . . . . . .

Blood and sweat and backbreaking toil — preparing to launch B-29's on the sky-road to Tokyo! — NO COMEDY FILM SIDESHOW NECESSARY — to get your employees to sit through *this* training film!

Keep things in their proper places — good housekeeping helps win the war!

Training by Inference abolishes Indifference—and makes the employee think the idea is his own!

Military Scenes from Official U. S. Army Films

Don't clutter up aisles—supplies and materials must flow smoothly!

RUNNING TIME — 10 MINUTES

PURCHASE PRICE — 16mm sound motion picture version — $42.50 (delivered in U. S. A.)

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VOCATIONAL SCHOOLS

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TRAINING CLASSES

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ALL TYPES OF INDUSTRIAL
SAFETY MEETINGS

☛ *"4000 YEARS OF EXPERIENCE"* — *vividly portrays the almost insurmountable handicaps which our Fighting Men have to overcome.*

— Shows how we at home can help to speed the smooth flow of vital supplies so necessary for VICTORY.

They can't help it—they HAVE to do things the hard way. This film shows the "Hard Way" of war front jobs in China, Italy and France—contrasts with the "easy-right way" at home.

among the users of our safety films will be found members of the following INDUSTRIES all cooperating in the WAR EFFORT:

- airplane factories
- shipyards
- safety commissions
- automobile factories
- vocational schools
- hotel associations
- munitions
- universities
- insurance companies
- truck operators
- oil companies
- chemicals
- steel mills
- airfields
- instrument manufacturers
- restaurants
- education boards
- automobile clubs
- electrical companies
- arsenals
- bus operators
- and others

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"WE'RE ON THE SPOT"
The A.B.C.'s of Industrial Safety

These films
are available in both
16mm & 35mm (sound)

"DANGER—WOMEN AT WORK"
—for women war workers in industry

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"TOMORROW'S TOO LATE"
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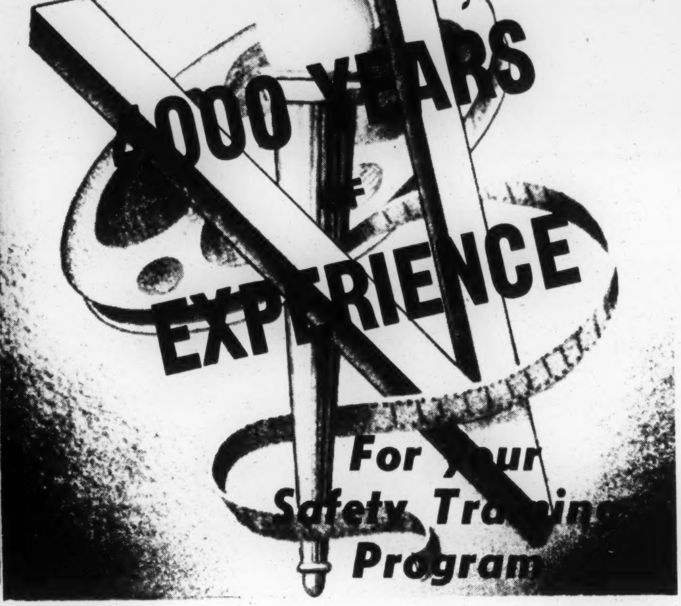
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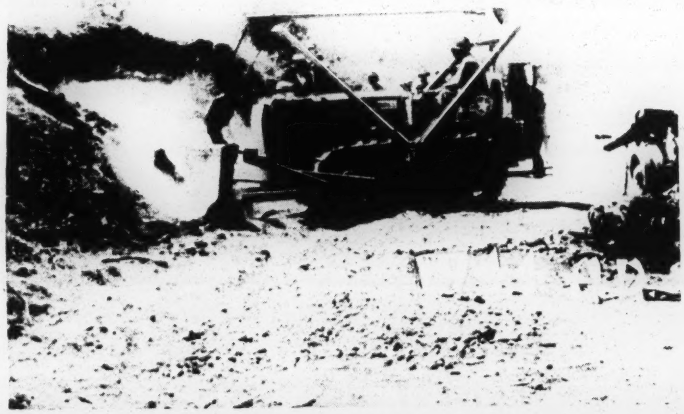

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PRODUCERS AND DISTRIBUTORS OF INDUSTRIAL, EDUCATIONAL, SAFETY AND TRAINING FILMS

WOMEN'S BUREAU
JUL 20 1944
DEPARTMENT OF LABOR

July 10, 1944

Gentlemen:

The B-29's took off for Tokyo from the very same Chinese air fields that you see under construction in the beginning of our latest production -

"4000 YEARS OF EXPERIENCE"

This Safety Incentive Film puts over its message of Safety and plant "Good Housekeeping" by contrasting the "hard" way of doing war front jobs in China, France and Italy, with the right and easy way of doing the job on the home industrial front.

> Many feet of factual "shots" - made by Army Official Photographers - hold your employees' interest from beginning to end. No comedy or newsreel are needed to get an attentive audience.

TRAINING BY INFERENCE - ABOLISHES INDIFFERENCE

Note the thought-provoking contrast scenes (just a few of which can be shown in the enclosed folder) - and check the Brief Synopsis printed on the back of this letter. We believe that you will then agree that "4000 YEARS OF EXPERIENCE" has a definite place in your training program as a worthwhile incentive for sustained peak flow of war-vital materials.

> Right now - while air raids on Tokyo, new European beach heads, and the ever-advancing Italian Campaign are fresh in the minds of your employees, let the utter timeliness of "4000 YEARS OF EXPERIENCE" do the most for your Safety Program.

That is why we urge you to order your print now - TODAY!

Sincerely yours,

André D Bustanoby

A. D. Bustanoby

MEMBER

ALLIED NONTHEATRICAL FILM ASSOCIATION INC.
ANFA

A Brief Resume of . . . . "4000 YEARS OF EXPERIENCE"
A Safety Incentive Sound Motion Picture

Vision Educational Productions, 509 Fifth Avenue, New York 17, N.Y.

Here is a "Safety Incentive Film" designed to "train by inference" - that is, by presenting thought-provocative contrasts with but a single and logical solution, lead the employee audience to believe that the idea of safety mindedness and factory "good housekeeping" is self discovered.

Interest is captured at the very beginning by taking you to China - showing thousands of coolies engaged in the back-breaking toil of building the very landing fields that served the B-29's on their take-off for Tokyo. We know that 4000 years of experience of cooperative effort yielded success even in the absence of all but the most primitive tools. In contrast, you see other Chinese with a limited amount of modern machinery gaining maximum production through right methods and "good housekeeping".

The "hard way" and the "easy way" are again highlighted in the next two sequences. First, American Combat Engineers are seen spanning the Volturno River in Italy. Despite modern machinery, nature and the enemy combine to make the task one to be done the "hard way". Compared with this is the familiar American factory scene of a workman pushing a material truck - an "easy way" compared to moving materials by hand; but time is lost because of "bad housekeeping" - rubbish in the passageway that must be cleared before needed materials can reach their destinations.

The scene shifts to machinery in operation - and the necessity for prompt adjustments to prevent slopping of oils and cooling compounds is forcefully illustrated - together with the necessity of keeping floors and aisle space CLEAN and CLEAR.

Another vivid contrast follows. First, Combat Engineers with mine detectors seeking hidden hazards to life and limb on the battle front; then, the loose nail or sharp object on the factory floor that could inflict an industrial casualty. Here the inference is strong for personal responsibility in discovering and removing such factory hazards.

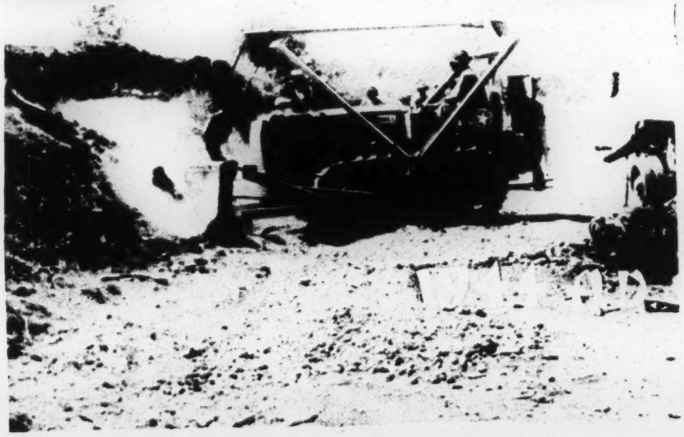
As you know, rubbish on the floor - PLUS a forbidden cigarette butt or unextinguished match - could touch off a store of badly needed war supplies just as effectively as an enemy bomb. The lesson is driven home by a sequence showing a German attack on Allied shipping in Bari Harbor, Italy, with supplies going up in smoke.

We have both met the man who thinks that victory is already here, just because news headlines herald United Nations' successes - you will meet such a man at this point in "4000 YEARS OF EXPERIENCE".

Finally, many scenes showing the tasks that still await doing by our front line fighters - tasks that must be done the "hard way" - point out by inference the necessity for using right methods and practising good housekeeping to insure the smooth flow of vital supplies that will actually put VICTORY within the reach of our soldiers.

A Vision Educational Production

1000 YEARS
OF
EXPERIENCE
For Your
Safety Training
Program



4000 YEARS of EXPERIENCE

Plant Safety thru Good Housekeeping . . . . .

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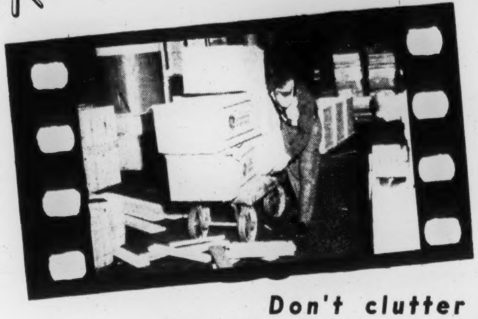

Don't clutter up aisles—supplies and materials must flow smoothly!

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- airplane factories
- shipyards
- safety commissions
- automobile factories
- vocational schools
- hotel associations
- munitions
- universities
- insurance companies
- truck operators
- oil companies
- chemicals
- steel mills
- airfields
- instrument manufacturers
- restaurants
- education boards
- automobile clubs
- electrical companies
- arsenals
- bus operators
- and others

Our other Industrial Safety Training Films:—

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The A.B.C.'s of Industrial Safety

These films are available in both 16mm & 35mm (sound)

"DANGER—WOMEN AT WORK"
—for women war workers in industry

— also available in 35mm slide film with record

"TOMORROW'S TOO LATE"
—safety procedure and health habits

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"DANGER— WOMEN AT WORK"

a safety-health film

AND

"TOMORROW'S TOO LATE"

a safety-health film

both available, 16mm sound motion picture and 35mm sound slide film (with record)

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THESE TWO FILMS WILL HELP YOU ACCOMPLISH THIS!

"DANGER— WOMEN AT WORK"

A SAFETY-HEALTH FILM

Designed especially for the new army of women war workers in industry

TIES IN WITH THE WAR EFFORT

takes up:

correct work clothes
safety procedures
proper posture at work
correct diet
protective clothing
absenteeism, etc.

AND

"TOMORROW'S TOO LATE"

A SAFETY-HEALTH FILM

TAKES UP THE WORKER'S PART IN THE WAR EFFORT

and discusses:

safety rules
result of idle machines
misuse of tools
care of colds
rules for relaxation
proper meals and nutrition
dermatitis
absenteeism
etc., etc.

©1943 VEP

Produced by
ANDRE D. BUSTANOBY
Written and Directed by
J. A. YOVIN

A VISION EDUCATIONAL PRODUCTION

RUNNING TIME ALL VERSIONS 10 MINUTES

PURCHASE PRICES

16mm sound motion picture version

danger—women at work	$42.50
tomorrow's too late	$42.50
when both subjects are purchased together special price for the two	*$75.00*

35mm sound slide film (with record)

danger—women at work	$17.50
tomorrow's too late	$17.50
when both subjects are purchased together special price for the two	*$30.00*

35mm sound on film motion picture version prices upon application.

The slide film records contain appropriate music on reverse side for playing before or after presentation.

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- truck operators
- oil companies
- chemicals
- steel mills
- airfields
- instrument manufacturers
- restaurants
- education boards
- automobile clubs
- electrical companies
- arsenals
- bus operators
- and others

Our Other Film Productions

"DRIVE FOR VICTORY"

Conservation film for all types of Motor Vehicles

Price: 16mm. sound only . . . $27.50

"CHECK WELL BEFORE USING"

Precautionary checking for Truck Drivers

Price: 16mm. sound only . . $38.50

"KITCHEN & DINING ROOM SAFETY"

For restaurant and hotel employees

Price: 16mm. sound only . . $42.50

"HUSTLE & BUSTLE"

Safety helps for Bus Operators

Price: 16mm. sound only . . $38.50

"WE'RE ON THE SPOT"

The A.B.C.'s of Industrial Safety

Price: 16mm sound $42.50

35mm slide films (with record) . . $17.50

Other versions upon application

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FILMS FOR FREEDOM

Vol. 1 No. 2

STUDY OUTLINE No. 2

prepared by the

Workers' Educational Association

for the

National Trade Union Film Circuit

This study outline has been especially prepared and distributed by the Workers' Educational Association, with the assistance of the Trades and Labour Congress and the Canadian Congress of Labour, for the use of trade unions participating in the National Trade Union Film Circuit programme.

Read the front page before you see the films. Then after the showing turn to the back page for some suggestions on making the best use of our labour resources here in Canada. What can you do through your union to make sure that every man and every woman is given a chance to do the best possible job in the most useful place? The chairman can use the Labour Quiz to get the discussion started, or you can fill it in yourself later at home.

LOOK — LEARN — AND TALK IT OVER

This Circuit is sponsored jointly by the National Film Board, the Workers' Educational Association, the Trades and Labour Congress, and the Canadian Congress of Labour. The regular program every month consists of films especially chosen for their interest to Canadian trade unionists.

Be on hand for Program 3 next month on EATING TO BEAT THE AXIS.

Making Full Use of Our Labour Resources

NATIONAL TRADE UNION CIRCUIT PROGRAMME 2

This month's programme takes up the whole question of making sure that each person is given the opportunity to make the greatest contribution to victory by doing the most essential of the jobs which will aid the war effort for which he or she is qualified.

The films you see include two from Britain — A JOB TO BE DONE and JANE BROWN CHANGES JOBS — and two Canadian shorts — CANADA'S YOUTH TRAINING PLAN and WOMEN DON SLACKS AND HAIRNETS.

Britain's Production Soldiers.

Workers in British factories have been close to the "front line" ever since the war began, and have been well aware of the need for every extra weapon they could turn out. Prime Minister Churchill has just stated that right after Dunkirk, Britain was almost completely without defense against invasion.

Wartime Britain has had to do a tremendous job in building up strong military forces and providing them with war equipment, first to guard against invasion and now to be ready to close the pincers on Berlin. There was so much to be done that the work of every man, woman and child in the whole country has been needed desperately. Like people of the U.S.S.R., and of China, the people of Britain have been carrying more than their share of the load, a load which requires the combined efforts of all the people of all the United Nations.

British Workers Mobilize.

These two films show the men and women of Britain finding their places in the war effort. Fortunately, there was already a strong and active trade union movement, and a well-established system of employment offices. Naturally, then, the British "selective service" system was worked out by the government in co-operation with the unions and employers' associations, and was centred around the employment offices, advised and assisted by joint committees of workers and management.

A JOB TO BE DONE shows this system getting into wartime operation. First we see the employment offices. They interpret the "schedule of reserved occupations" which classifies all the types of work according to their war importance. They find war jobs for workers who have become unemployed as a result of wartime shortage of materials or of shifts in industry. They place new workers who have never had industrial jobs before. They have been called on more and more to arrange transfers of workers from the less essential to the more essential jobs and industries. Next the film shows the local labour supply committees (joint committees of the unions and employers) working along with the factory inspectors in surveying factories to make sure that the time and skills of the workers are being fully used. Finally we see the provisions for training new war workers through government training centres and factory schools.

In JANE BROWN CHANGES JOBS, Jane gives up her stenographer's pencil to "help back the boys with planes". We follow her through her training in the government training centre, and on to her work as a skilled aero detail fitter in an aircraft plant. Notice how carefully the welfare of the workers is considered at every step, from the careful instruction and pay-while-training at the Training Centre, to the afternoon tea break and the symphony concert in the plant canteen at dinner time.

War Jobs in Canada, Spring 1943

Has the war increased the need for workers in Canada?

It certainly has. Before the war, there were 2,269,000 wage earners employed in Canada (Bank of Canada estimate). Now we have about 600,000 in the armed forces, and well over 1,000,000 in war industries alone, turning out hundreds of complicated types of equipment never attempted in Canada before. Dr. Couper of the federal Department of Labour stated recently that one-third of all the men from 18 to 45 were in the armed forces, and two-thirds of the entire population from 16 to 65 were either in the armed forces or gainfully occupied.

Is there likely to be a serious labour shortage this year?

Dr. Couper believes that between 250,000 and 350,000 workers will be needed before next March to fill the gaps left by enlistment and to take care of expanding war production. He expects that 200,000 of these will have to be transferred from less essential industries. Besides we must plan this year on even greater demands for our war goods and our armed forces — the invasion of Europe we are so eagerly awaiting is sure to cut deeply into our reserves.

How can this labour shortage be met?

1. By making full use of the time and skills of the workers already employed in war and civilian industries — this means proper standards for military deferments; joint labour-management production committees really functioning in every plant; every effort to reduce the time lost through illness and fatigue; prompt adjustments of wage inequalities, especially between industries (including farm wages); and adequate training and upgrading.

2. By transferring workers from less essential to more essential jobs, and using all our resources to produce for essential war and civilian needs. Union organization everywhere, plus agreements between unions to honour the membership cards from other unions, will make certain that transfers do not weaken the unions. Bring cases where non-essential goods are still being produced to the attention of the government through your union.

3. By bringing in new workers not in industry before. Most of these will have to be women, and proper working conditions in the plants, equal pay for equal work, and every kind of measure that will make it easier for these women to look after their homes will be necessary.

Do the lay-offs we hear about so often now mean that the shortage of workers has been exaggerated?

Not at all. Some are due to changes in models as weapons have been tested in actual fighting; some are due to poor planning, perhaps unforeseen shortages of materials or whole groups of contracts running out at the same time. That happened in Britain, too — remember the coal miners being sent to other jobs in the picture? They are desperately needed back in the mines now. Layoffs for any of these reasons call for vigorous union action to make sure that the workers are promptly shifted or loaned to other essential work and to establish labour participation in war production planning so they will not occur again.

Are you up on your toes in every discussion with the latest information from the W.E.A. Labour News? It is chock full of the facts and figures every union member needs to have on the tip of his tongue. The feature article of the April issue was on Joint Labour-Management Production Committees, and the December and January issues dealt with Selective Service and Manpower. Write the W.E.A., National office, 106 St. George Street, Toronto, for a subscription ($1.00 a year) or for copies of these issues (5c each). W.E.A. Research Bulletin No. 6, "Labour Displacement" (10c) tells about British methods of transferring workers to more essential war jobs.

But if the layoffs should be due to an actual falling off of war orders even stronger action is needed. We know that the war is far from over, and the workers of Canada have shown time and again that they want to do their full share. We need not wait for contracts from Britain or the United States in order to keep our war factories active. We should be offering to make the weapons, using the billion dollars "Mutual Aid" fund to send war supplies directly to the Allies that have been putting the whole of their limited resources into this fight — the U.S.S.R. and China could use unlimited amounts of the equipment we can produce. The remedy for that kind of layoffs is a bigger, more ambitious war effort — more help to our gallant Allies, and a real "Second European Front" now.

LABOUR QUIZ

TRUE FALSE

1. The British "schedule of reserved occupations" classifies the different jobs in the order of importance to the war. - - - - - - ....
2. There are as many employees in British industries supplying civilian goods now as before the war. ....
3. Both men and women in Britain can be required to shift from non-essential to essential work. - ....
4. Local Labour Supply Committees include union representatives. - - - - - - - ....
5. There is no check on British war factories to make sure that they need all their employees. - - ....
6. Organized workers had a voice in formulating British manpower policy. - - - - - ....
7. Employees training for war work in government training centres are paid while training. - - ....
8. Women in Britain are not trained to be welders. ....
9. The "schedule of reserved occupations" was drawn up before the war and has not been changed since. - - - - - - - ....
10. Joint labour-management production committees are necessary for a complete manpower policy. ....

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Vol. 1 No. 3

FILMS FOR FREEDOM

STUDY OUTLINE No. 3

prepared by the
Workers' Educational Association
for the
National Trade Union Film Circuit

This study outline has been especially prepared and distributed by the Workers' Educational Association, with the assistance of the Trades and Labour Congress and the Canadian Congress of Labour, for the use of trade unions participating in the National Trade Union Film Circuit programme.

Be sure to read this front page **before** you see the films. The material on the other side is intended to help you in your discussion afterwards about what you can do in your own plant through your union and joint production committees.

**THEY DO IT IN BRITAIN - -
LET'S DO IT HERE**

This Circuit is sponsored jointly by the National Film Board, the Workers' Educational Association, the Trades and Labour Congress, and the Canadian Congress of Labour. The regular programme every month consists of films especially chosen for their interest to Canadian trade unionists.

Published by the
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Eating to Beat the Axis

NATIONAL TRADE UNION CIRCUIT PROGRAMME 3

This month's programme is all about food — what workers and their families need to eat to be full of pep for their war jobs, where and when they are going to get their meals, where the food supplies are coming from, how much they will cost.

This Month's Films

1. **Eating At Work** — British.
2. **Vitamins A, B_1, C and D** — Canadian shorts.

Eating At Work shows how Britain is tackling its problem of getting the right food to the workers producing war supplies and essential civilian goods, and getting that food to them in the right places and at the right times.

Here are some of the highlights—

- The effect of faster production and longer hours on health.
- The great need for industrial food services as women enter industry.
- The joint administration of the food wagon service.
- The special provisions for night workers.
- The law requiring canteens in factories with 250 or more employees.
- The way smaller plants have provided food services.
- The careful planning of meals — very important when food is scarce.
- The consideration given to the canteen employees.
- The efforts to have meals hot and fresh, and served quickly.
- The workers' share in the administration.
- The emphasis on a balanced diet.
- The use of the canteen as a social centre — dances, concerts, games.

Vitamins A, B_1, C and D shows how these vitamins affect our health and what foods are richest in them—

Vitamin A—for keen eyesight — from carrots, liver, eggs and milk.
Vitamin B_1—for co-ordination of muscles and nerves — from whole grains, milk, eggs, green vegetables, liver.
Vitamin C—for firm gums, clear skin, shiny hair—from citrus fruits, tomatoes.
Vitamin D—for strong bones — from sunshine and fish oils.

Good Food is a War Weapon

"Food makes a difference in dollars, in bombers, and in accidents."
—Dr. L. B. Pett, Director of Canadian Nutrition Services, Ottawa.

Did you know that—

- Canadian industrial workers lose on the average 9 days from work each year through sickness and non-occupational accidents, enough days to build 2,000 bombers, and that a large proportion of those days are lost because of poor nutrition?
- One out of every three men rejected by the United States army as physically unfit is suffering from malnutrition?
- Canadian army recruits gain about 7 pounds on the average in their first month of service, largely because of better food?
- After a group of men rejected by the British army as physically unfit were given special food and regular work 87% were able to enlist for active service?
- The medical consultant for the National Association of Manufacturers in the United States says that possibly three out of four American wage earners are ill-fed according to nutrition standards?
- Canadian Nutrition Services reports 20% of the whole population of Canada definitely undernourished, 40% on the dangerous border line and only 40% adequately nourished?
- A Canadian plant reports a drop of 27% in the number of first aid treatments needed after its lunch room was started, and an American plant found production rise 10% as the result of a food wagon service?

BE ON HAND NEXT MONTH FOR THE NEXT PROGRAM

Victory Lunch Cooks Hitler's Goose

Meals at work are not just a fill-in until we can get home and get a real meal. We must count on getting a good part of our daily food requirements from them.

When Canadian Nutrition Services inspected a number of Canadian plants last summer they found that even in the large plants with over 1,000 workers only 64% had cafeterias and 18% had dietitians in charge. So the lunch pail has to go to war, too.

The Daily Check-up

Canada's Food Rules give you a quick and easy way of checking up on what you need, whether you buy your lunch or carry it from home—

Milk — adults, minimum ½ pint; children, pint or more daily.

Fruit — tomatoes or citrus and other fruits daily.

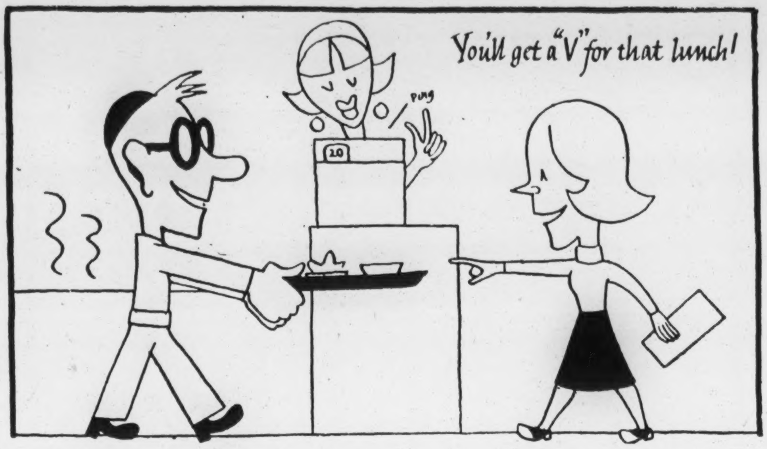
Vegetables — potatoes, 2 servings of other vegetables (often raw) daily.

Cereals and Bread — 4 to 6 slices of Canada Approved Bread, whole grain cereal daily.

Meat, Fish — 1 serving daily. Some source of Vitamin D.

How We Fall Short

In a Gallup Poll a short time ago a great many Canadians admitted breaking these rules—


You'll get a "V" for that lunch!
ping
20

83% did not eat adequate fruit.

40% did not eat the proper bread and cereals.

25% did not get enough milk.

10% did not eat enough green vegetables.

3% did not eat enough meat or fish.

The Time and Place to Eat

According to the United States Department of Labour there should be a regular lunch period at least 30 minutes long. With a properly planned cafeteria there is no need to spend practically the whole lunch period waiting in line. For the lunch pail brigade there should be at the very least a lunch space apart from the working area (only 20% of the sample plants last summer had mess rooms), and canteens serving milk drinks, soup, etc., are useful both at lunch time and during the morning and afternoon rest periods. They are easy to install and pay real dividends in war production.

Suggestions for Unions and Joint Committees

Here are some of the proposals of the Canadian Nutrition Services — what can you do towards getting them carried out in your own plant?

1. Plants should assist workers to get nutritious meals with reasonable ease and economy.
2. Plants should employ or consult a qualified nutritionist or dietitian.
3. Plant-managed dispensaries of food should be run on a non-profit basis or profits should be used to provide free milk in the plant.
4. Between meals in rest periods nutritious beverages and sandwiches should be made available.
5. Where the working day is more than 8 hours, more than one lunch period should be provided.
6. Every plant should have an educational programme about food values.

Food for All — and Wages to Buy It

Then, too, the union is interested in making sure that adequate food supplies are on hand for the whole population at reasonable cost. With such vast quantities needed for our Allies overseas and for our armed forces, there is need for a real programme to increase food production, widespread rationing to distribute the supplies fairly and according to these nutritional standards, and wage adjustments for low-paid workers so they will be able to buy their share of the rationed goods. A sample study from the 1941 Census shows that almost exactly 50% of all Canadian wage and salary families had incomes of less than $1,300 for the previous year.

LABOUR QUIZ

	TRUE	FALSE
British food plant services enable more women to work in industry	....	....
There has been no substantial change in British food habits due to the war	....	....
The canteen provided food in the daytime only	....	....
The manager met a workers' committee regularly	....	....
The dishwashers were put away from the windows	....	....
When meat was scarce the workers' canteen was given the first preference	....	....
A good canteen meal includes most of the protective foods for the whole day	....	....
Salads were not popular in the canteen	....	....
Workers' food consumption in Canada before the war was adequate	....	....
If food was rationed on the basis of nutrition needs many workers' families could not buy their full ration	....	....

The W.E.A. summer school near Port Hope, Ontario, is a fine place to combine learning and playing. Although it was only purchased last year and did not open until the end of June, nearly 500 people enjoyed vacations lasting from a week-end to two weeks, swimming, hiking, singing around the campfire, and learning through discussions, lectures and classes how to take a more active and responsible part in their own unions. This year it will be open all summer. For further information write the WORKERS' EDUCATIONAL ASSOCIATION, 106 ST. GEORGE STREET, TORONTO.

Vol. 1 No. 4

FILMS FOR FREEDOM

STUDY OUTLINE No. 4

prepared by the
Workers' Educational Association
for the
National Trade Union Film Circuit

Sponsored jointly by the National Film Board, the Workers' Educational Association, the Trades and Labour Congress, and the Canadian Congress of Labour.

"All Work and No Play . . ."

But you know the rest of the story. Today Jack — and Jill, too — and thousands like them, from the sixteen year olds to their grandpas and grandmas, are working in war plants. What about their play?

NATIONAL TRADE UNION CIRCUIT PROGRAMME 4

The films this month show different aspects of wartime recreation. Among the highlights are:

- Canadian workers from a Toronto plant act, direct, produce and stage Gilbert and Sullivan's **The Gondoliers.**
- The National Seamen's Union in Britain plans to turn its wartime country offices into a permanent recreation centre.
- The British Columbia Pro-Rec (Provincial Recreation) program expands activities to meet war workers' needs.
- Russian workers provide their own entertainment after work.
- CEMA, the British Council for the Encouragement of Music and Arts, brings the finest musicians and the best works of modern artists to outlying communities.

A good many unions in Canada have found that recreation is definitely part of their job, and that it pays real dividends both in a stronger and livelier union and in increased war production.

HERE ARE A FEW SAMPLES:

December — U. E., Small Arms local, Toronto, establishes recreation centre.

April — ILGUW choir, Montreal, entertains at union dance for the armed forces.

April — Rod and Gun Club, organized in St. Catharines, open to all union members in district.

April — Vancouver Aircraft Machinists run swing shift dances, and turn out accomplished Rhumba and Conga experts at a special class run in co-operation with the Pro-Rec programme.

April — CSU, Toronto, has exhibit of wartime paintings in members' club room.

April — W.E.A., with support of Steelworkers, Machinists and Auto Workers, arranges special midnight movies for the swing shift workers of West-End Toronto plants.

May — Aircraft Machinists, Montreal, plan summer recreation and education programme.

May — Gas, Coke and Chemical Workers, Niagara Falls, is one example of the many unions which enter girls' and men's city softball leagues.

June — W.E.A. sponsors Dramatic Group presentations to union meetings and conferences in Toronto and St. Catharines. Skits are on current topics with a punch, presented by workers for workers.

June — Vancouver Boilermakers appoint one of their members as Director for Social and Athletic Club, and swing into programme including softball, swimming, dances, etc., with even a choir, dramatic club and symphony orchestra in the making.

June — Toronto and District C.I.O. Recreation and Welfare Council established, with full time director. Programme includes swimming, films, and summer camp.

July — Auto Workers, Merritton, plan cruise to Toronto to take in one of season's big baseball games. Dancing — and moonlight — also provided.

FLASH!!

Arrangements are being made for a special discussion of union recreation at each session of the W.E.A. Summer School this summer. Detailed information on request from W.E.A. Headquarters, 106 St. George Street, Toronto.

BUT WAIT A MINUTE!!

What's all this got to do with the union? We learn by the grapevine route that every one of these projects ran up against the stock objections - -

"Of course everyone needs recreation, but that's not the union's job."

"If the union sees to the wages and hours, we can look after our spare time."

"Too much organizing to be done to waste time on frills."

"We need the funds for the organizing drive."

"I've always found my own recreation, and so can the young people now."

Well . . . ?

Is Recreation a Union Job?

Well, brother, times change, and the union's job changes too. All these unions have found that a live recreational programme helps meet an important need of its members, and goes a long way to build up the union.

It appeals to the young people in industry. The chief source of union recruits, they want their union to take a real interest in their problems.

It meets a real economic need. It takes time, and energy, to arrange one's own amusements, and the kids who spend eleven or twelve hours a day at work, and getting to and from work, haven't much of either to waste in shopping around for their fun. They are often from out of town, don't know the community facilities, have no place to entertain. The commercial amusements cost money, and besides do not provide a well-rounded recreational programme, or any real social life with other people.

It helps build the union. A recreation programme makes the union a centre for the whole family, and that counts for a lot when the economic crises do arise. Today, with strikes out of the picture for the duration, union members need to work and act together in other ways in order to keep a live union.

It brings more people into contact with the union. Thousands of young workers make their first contact with the union through a dance or picnic.

It develops union leadership. A young member who organizes a successful dance has made a good start towards being able to organize a convention or a Labour Day parade.

It backs up the union's production programme. Better war production calls for healthy, happy workers. For young workers away from home, or on shifts that keep them from taking part in normal social activities, recreation is a MUST for health and happiness — for good production.

It improves the union's relations with the rest of the community. Other people see the unions providing a needed service for their members — realize that unions are active community organizations — work together with union representatives on community projects. Result: they come to understand better the importance of union organization, both for the workers and the community.

The federal government passed an order-in-council in June (P.C. 4703) appropriating $40,000 for recreation projects for workers in war industries. Several cities are already working out plans on a community scale to co-ordinate recreation needs and resources, and to gear present recreation programmes to the needs of the army of new war workers. Unions should get into these Community Committees, both to interpret the needs of the workers and to help work out the types of programme that will best meet the wartime needs. By making their recreational work an integral part of the whole community programme they will be able to ensure that these recreation and health projects, started now to meet a wartime need but certain to be continued in times of peace as well, become and remain bulwarks of democracy.

THE PROGRAMME?

It should take account of different tastes and interests — should provide for sports as well as culture — should involve as many members as possible, with their families and friends — should appeal to the young and not so young — should provide recreation for workers on every shift and from every department — and should be run by the members themselves, in their own way.

This means at least a Recreation Committee, made up of people who are not too tied up with other work in the union, and thoroughly representative of the various sections of the plant and groups of recreational interests.

REFRESHMENTS

FUN WITH A UNION LABEL

Why not make your next union dance one that is just a bit "different", and at the same time let your new members and their friends know something about the union and its programme? It's easy through a sing-song. Mix in a few snappy union songs. And don't stop with the old ones, write your own. You probably have at least a dozen members in your local who could turn out a bright little parody — to the latest hit tune — on anything from the second front to the war workers' gas ration. The "Song of the Swing Shift", which was written especially for the W.E.A. swing shift movie nights, shows what can be done with an old tune and a new situation. Using a small lantern and flashing the words of the song on a screen gives much better results than using song sheets — people seem to sing better in the dark!

If the union has a choir, it can do a real service preparing and introducing some of the fine new workers' music and the songs of the other people all over the world who are fighting along with us. The members with a flair for the dramatic can help explain the union programme. A dance group, interpreting the life of workers today, is a more ambitious project, but quite within the range of many unions. Anyone who has heard Paul Robeson sing the "Ballad for Americans", re-interpreting American history for the American people, will realize that this mass chant combining music, acting, and movement, is more effective than any number of speeches or pamphlets.

SONG OF THE SWING SHIFT

(Tune, Tipperary)

It's a long shift, from four to midnight,
It's a long shift - - to go.
But the beefs heard, are ones that come from
Rome, Berlin and To-ky-o.
Next month, we'll shove our Bren guns,
Right in Der Feuhrer's face.
And we'll stretch his neck from four to mid-night
That human disgrace.

Vol. I No. 5

FILMS FOR FREEDOM

STUDY OUTLINE No. 5

prepared by the
Workers' Educational Association
106 St. George Street, Toronto.
for the
National Trade Union Film Circuit

Sponsored jointly by the National Film Board, the Workers' Educational Association, the Trades and Labour Congress, and the Canadian Congress of Labour.

Production Committees "Hot Up" The Offensive

With the decisive offensive of the war almost upon us, joint labour-management production committees are needed as never before, and in every phase of the war programme. But there is no place where they are more needed than in the basic industries producing the fuel and raw materials on which all the others must rely.

NATIONAL TRADE UNION CIRCUIT PROGRAMME 5

The films this month deal primarily with the coal industry, one of the most vital industries for the entire war programme.

- **GETTING OUT THE COAL** shows the extent of the problem in Britain, and the way it is being met there.
- **KING COAL** shows labour-management co-operation in action in the Northumberland mines.
- **LAKE CARRIER** deals with another closely related basic industry, iron ore for our Canadian steel mills.

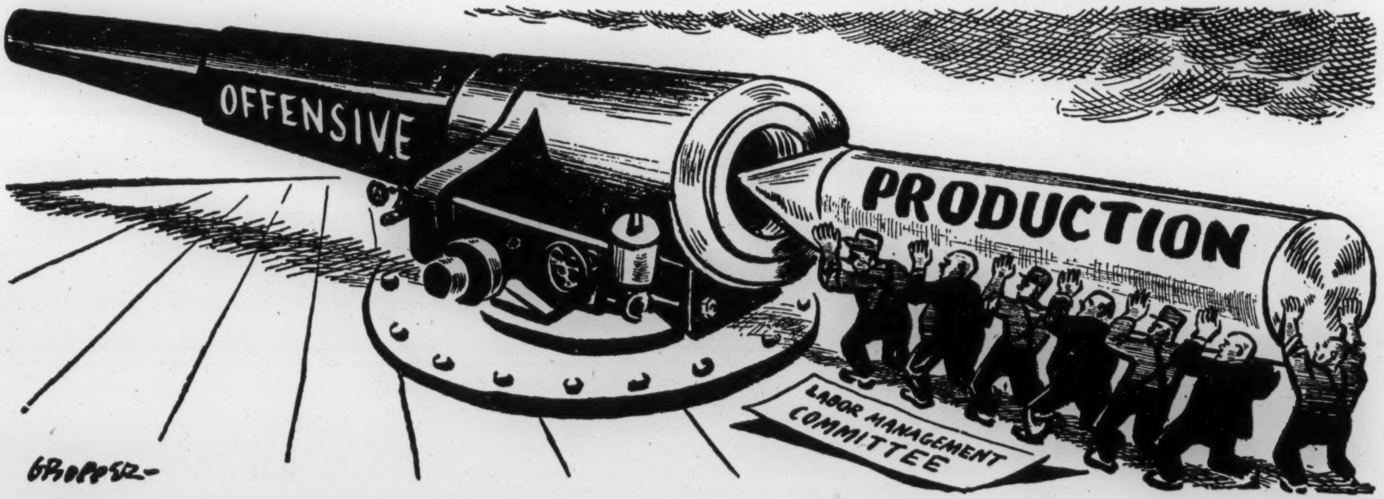
On this side of the water far too many joint labour-management production committees are still in the paper stage. Here we have an opportunity to see one really functioning — investigating all the difficulties standing in the way of increased coal output, putting into effect the practical ideas of the men down at the coal face, organizing and planning a better distribution of work and workers.

BUT WHY PRODUCTION COMMITTEES ANYWAY?

That's easy! Take this coal industry, for example. The workers and management in the industry know how to mine coal — their experience and knowledge must be used to the fullest. If they do not work together the whole country suffers — the steel mills cannot make steel, war industries must slow down for lack of fuel and materials, ships cannot sail with war supplies, our homes will be cold next winter. If they do work together, and do put aside their differences in a joint effort for the common cause now, the whole war programme can go forward faster, and victory will come all the closer.

In the past managements in the coal mines, just as in other industries, have resented the workers undertaking "to interfere with the business". But up against a common crisis that attitude has to go! The workers in the mine are just as anxious to defeat fascism — sometimes more so, and with more reason since they remember how the workers of Europe have been enslaved. The workers know as much — often more — about their own jobs, and can put forward very useful proposals for better planning and scheduling of production, more effective use of time and machinery, improved methods and equipment, reduction of waste. They generally know much better how their working and living conditions affect the health, the efficiency, and the "heart" for production of themselves and their fellow workers.

But the coal mines are not the only place where joint production committees are needed. So if you are a textile worker, or a railwayman, or a printer, or a taxi-driver, don't think you have nothing to do with this discussion except to hope that the coal miners and managers will co-operate enough to assure you of fuel for your furnace next winter. If the coal miners can make joint production committees work, so can you.



Production Co-operation Must Have Solid Basis

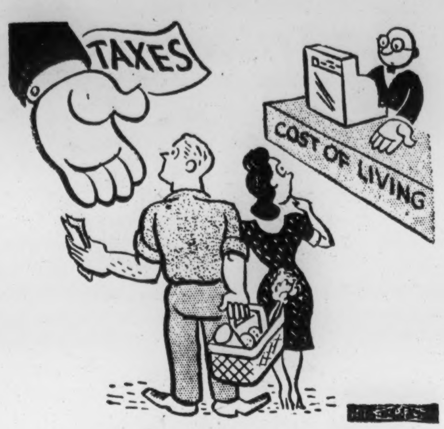
But joint production committees don't, like Topsy, "just grow". They require careful planning, solid organization, a genuine willingness to co-operate, and a real understanding that the issues at stake in the war are more important than the differences between the workers and the management, no matter how serious those may be.

A joint production committee is not the same thing as a collective bargaining agency: it is made up differently, and it serves a different purpose. The solid recognition already given to trade unions in Britain is, of course, one very important reason why production committees have been so successful there, and the lack of such recognition in Canada has greatly hampered their development.

But even where unions are well established, both sides have to make some concessions, and it is very little use talking about "getting together" unless a real effort is made to understand and to provide remedies for the "sore spots". The coal industry is a good example. The workers have established their right to collective bargaining: but practically every other difficulty in the way of understanding and co-operation which is likely to be met in other industries can also be found there — plus a good many peculiar to the coal and other basic industries.

The Why's of the Coal Crisis

- **Increase in demand for coal.** For every three tons used in Canada in 1939, five are needed now. A large proportion of the increased demand has so far been met by imports (imports have risen 97%, production 31%), but with United States production in a critical condition the increased demand for 1943 will have to be met from Canadian mines. Three tons will have to be mined for every two in 1939.
- **Limited productive and transport facilities.** Before the war coal mining was chronically depressed — a high cost, poorly organized industry, constantly requiring government subsidies, and with a much larger requirement of workers than in the United States for equal amounts of coal. With the existing mines and equipment opportunities for rapid expansion of coal output are limited.



As the Miner Sees It
—from the C.I.O. News

Besides the coal has to be taken long distances to Ontario and Quebec, and available transport facilities will be greatly strained to handle this large increase.

- **Shortage of Manpower.** About 25,000 workers are employed in coal mines today, practically the same as before the war. But about 7,000 men, mostly the younger miners, have enlisted or left for other industries, leaving the average age of the miners unduly high for such a strenuous industry. At the end of April there were 2,350 vacancies, and only 1,000 experienced miners had returned to the pits through compulsory service orders.
- **Lack of Co-operation.** In spite of union recognition, the history of labour-management relations in coal has been stormy. The miners, in Nova Scotia and in the Western coal fields, feel the companies have no interest in them but to exploit them. The companies feel that the miners are interested only in wages.
- **Social and living conditions.** This division between workers and management is heightened by the deplorable conditions of life in the coal mining communities — almost always isolated, housing conditions bad, food costs high, little community spirit, the local bar-room practically the only social centre (going far to explain the burning resentment against beer rationing).
- **Working conditions.** Work in a coal mine is heavy, dirty, and dangerous. A working pace which could be kept up for the two or three days a week worked before the war becomes impossible with the present six-day week. Wages have not been equalized between mines and living costs have gone up faster than wage rates. Absenteeism has always been common — a reflection of short time and seasonal work, and poor living conditions. To-day high taxes and longer hours add to the problem.

More Coal—More Production

The answer to the coal problem, as in other industries, lies partly with the workers, but also with the managers, the government, and workers in other industries.

The miners can co-operate with the management on the all important issue of war output, at the same time deciding which grievances can and must be met in the interests of greater production, formulating them clearly, and making sure they are understood.

The management can demonstrate its sincerity by working together with the union in joint production committees and by meeting the legitimate grievances of the workers.

The government can make every effort to bring the two parties together, put its machinery for settling disputes into action promptly, and take the lead in improving the living conditions of the workers so as to remove the feeling that the rest of the community thinks of miners' interests only when their output is desperately needed.

The workers in other industries can support the coal miners in their efforts to adjust their grievances, and by taking an active part in their own joint production committees can help to extend them to the basic industries as well as assure the best possible use of available supplies of fuel, materials, and labour.

BRITISH EXPERIENCE PROVES WORTH OF PIT COMMITTEES

"Pit production committees are now operating at nearly every colliery in Great Britain. . . . The great majority of pit committees are working smoothly and efficiently. . . . The introduction of this type of workshop or pit democracy represents a new stage in British industrial development. . . . Production committees have derived their main impetus from below and are firmly attached to the trade union movement. There can be no doubt that the present participation of the workers in the organization of production and the new spirit of co-operation which is found in the best committees are bound to have far-reaching effects on industrial relations in the post-war years."

—From article in the London "Economist"

Printed by Thistle Printing Co., 76 Duke Street

Vol. I No. 6

FILMS FOR FREEDOM

STUDY OUTLINE No. 6

prepared by the
Workers' Educational Association
106 St. George Street, Toronto.
for the
National Trade Union Film Circuit

Sponsored jointly by the National Film Board, the Workers' Educational Association, the Trades and Labour Congress, and the Canadian Congress of Labour.

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The Right Side of the Tracks

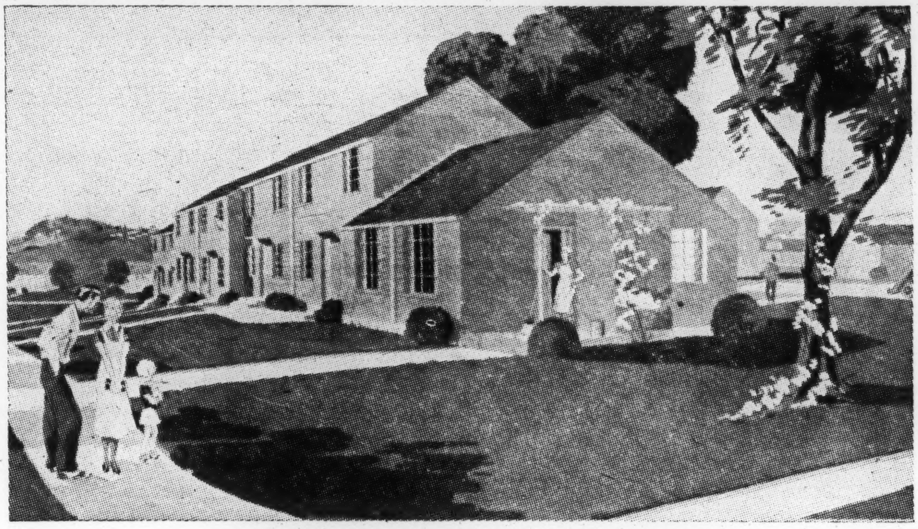
NATIONAL TRADE UNION CIRCUIT PROGRAMME 6

At last our programme has come around to the subject of housing, one of the most discussed in working class circles today. Whenever a group of union men's wives get together you can be pretty sure they are comparing notes on either the housing shortage or the rising costs of food.

This Month's Films

- **WARTIME HOUSING LTD.** — National Film Board technicolour.
- **BANSHEES OVER CANADA** — "Canada Carries On" series.
- **EMPTY ROOMS MEAN IDLE MACHINES** — "Plugger" series.

Your Union has probably had its Civilian Defense work going for months now, so let's settle down for a session on what you and the other members can do about better homes.



Livable Apartment Housing, Greenbelt, Md.

—U.S. Resettlement Administration

Cities For Living

Just a word though about **Banshees** before we leave it for **Wartime Housing** and **Plugger.** Bombs are very effective slum clearers. They clear away a lot of dead traditions and vested interests along with the old buildings, and open the way to really modern city planning on a large scale. Those British cities you see blitzed in the picture are being rebuilt. Some of them — London for instance, and Coventry, Birmingham, Manchester, Hull — are putting to use the hard thinking that was going on in Britain long before the war. They are rebuilding from the start as communities planned for healthful, happy living, with light, air and a view for everyone, wide streets, plenty of open spaces, away from through traffic and factory smoke, and with schools, playgrounds, entertainment, and shopping districts all close at hand.

As for Moscow, it already had a ten-year plan well under way before the war began, and when the banshees stop wailing there for good the citizens will go right back to building and rebuilding their city according to the plan. The Foreign Policy Association — in its pamphlet on public housing called **New Homes for Old** — speaks of "the imaginative sweep of Soviet city planning" as "a challenge in particular to America".

This is our Problem Too

We have not had this new start in Canada, either forced on us by bombing or deliberately planned. But — even though this is a new country, with plenty of space and everything at hand to build comfortable homes for our people — we have a housing problem. In fact we have two very serious housing problems.

WHAT ARE THEY?

- The most urgent right now is shelter in the right places to meet the needs of people who have had to move into the industrial, military and government centres in order to do their wartime jobs. The houses they leave behind in the small villages and on the farms are simply not "available" for the war workers who need homes for themselves and their families.
- The longer-term, and even more serious, problem is to provide decent homes in good surroundings for the hundreds of thousands of Canadian families who were, even before the war, living in over-crowded houses, doubling up with other families, or making shift with houses in poor repair and without modern facilities.

Homes for the Home Front

Naturally workers cannot put their minds and hearts into their job unless they have a decent place to live. The U.S. Maritime Commission has found that the chief cause of absenteeism in the American shipyards is poor housing.

Since the bulk of the wartime migration is already over, the emergency need now is to make the housing of the workers already employed "good enough for workers fighting a people's war". That in itself is still a big job! Rent control, and housing registries, can't make enough shelter where it doesn't exist.

So the government was practically forced into Canada's first large-scale experiments in public housing — Wartime Housing Limited, to build houses for war workers in cases where industrial plants could demonstrate that new houses were needed to assure their labour supply, and — just this summer — financial assistance for certain cities undertaking to convert large homes into self-contained apartments.

But this wartime programme had to be devised hastily. It has provided shelter where it has been urgently needed, and provided it quickly, thanks to prefabrication. But its basic assumption that these houses will not be needed in their present locations after the war and should be built for easy transfer to other sites is open to question.

To make sure that they do not in their turn become slums, there must be a large-scale permanent housing programme to go into effect as soon as the war is over, and an assurance that the present houses will be run directly by the Government until the people living in them can be transferred to permanent communities.

For the remainder of the war emergency the best prospects are much more rapid conversion of existing large houses, stores, etc., coupled with a determined effort to supply large numbers of strictly temporary houses in areas where facilities for schools, and public utilities, etc., are already available.

A real public housing programme is a major social change — a reversal of trends which have been developing for more than a century and it requires hard thinking and planning, and a concentration of social thought and pressure. Wartime emergency efforts are hardly a fair test.

The Long Term Plan

Home building is a very important part of both British and American plans for assuring full employment after the war. In Canada, something like 500,000 new dwelling units will be needed to provide decent housing for our people.

Where Do We Start? Public housing in Britain and in Europe has gone through three stages:

1. Rapid building of satellite communities with employment opportunities.
2. Slum clearance.
3. Efforts to reduce overcrowding.

We should be able here to think ahead to all these stages from the beginning.

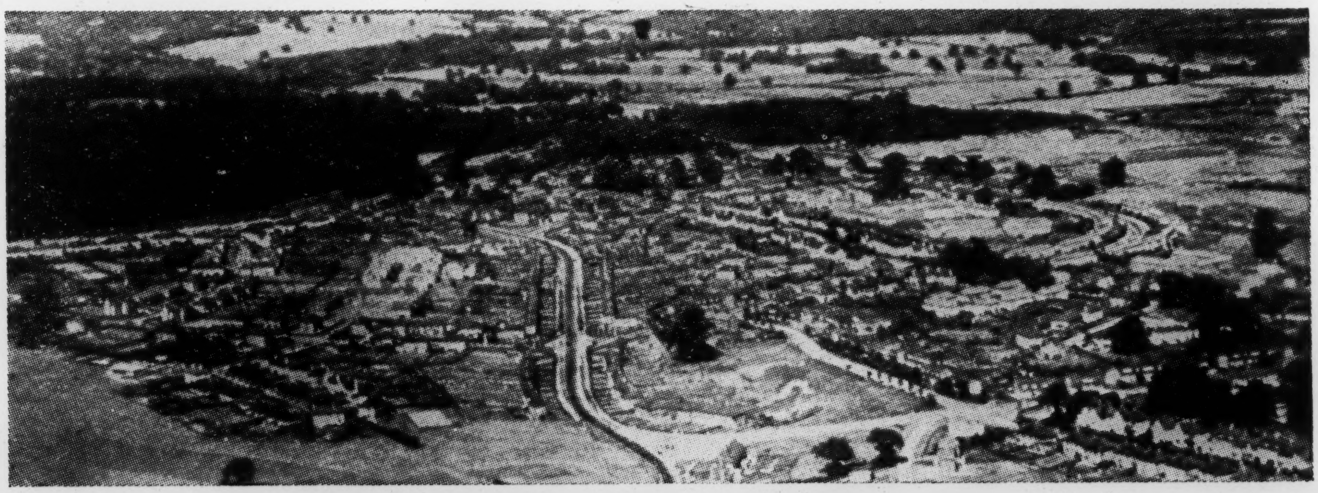
The Community Plan — In the Greenbelt Towns of the United States and the Garden Cities of Britain, each residential section is a self-contained community, with sunshine, air, and a view for everyone, lawns, playgrounds, community facilities near at hand. Factories and railways are far enough away to prevent noise, smoke and unsightly views, and highways skirt the community.

What Kind of Houses? Most Canadians hope for a detached house, with its own garden, which they can own themselves. But rehousing that way would take a long time, would often mean long distances to travel to work, and isolation from the education and recreation which can be provided in a more compact community.

Apartments are the most economical type of housing and can be built most quickly. Even families with growing children would find a welcome and a home in the kinds that can be built nowadays—each apartment with its separate entrance, completely soundproof, the whole building set in a large park with ample space for play, and with efficient services.

Next in cost and rapidity of construction is the community of one family houses, supplied with heat, hot water, etc., from a central plant. But to sell or rent cheaply enough for the great majority of Canadian families these would have to be partly prefabricated for mass production.

A National Plan. Whatever the type of housing we must have a national town planning and housing. It may be best to put responsibility for actual construction on the local governments as in Britain, but there should be a dominion and provincial commissions — fully representative of labour and consumers as well as industry — to focus public attention on the job to be done, to develop standards, and to tie in the housing programmes with general economic policy. For the people of Canada to enjoy good housing there must be a widespread increase in incomes, or a great reduction in the costs of constructing houses, or government subsidies. All call for government action on a national scale.



Wellwyn, Garden City, England, a model of town planning. —U.S. Resettlement Administration

Vol. I No. 7

FILMS FOR FREEDOM

STUDY OUTLINE No. 7

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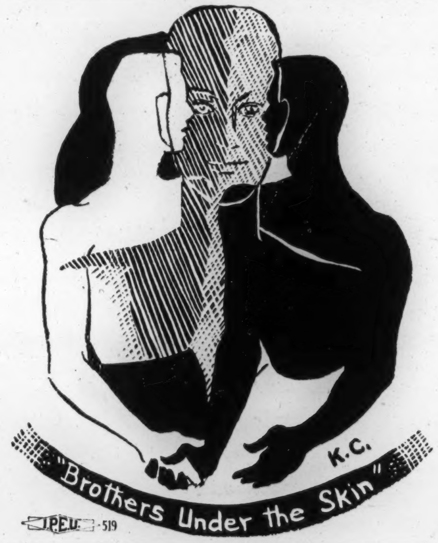


BOOKLETS ABOUT OUR ALLIES

In the **"Land of the Soviets"** and **"Changing China"** the American Council of the Institute for Pacific Affairs has given us very readable accounts of the economic and political life of our two great allies across the Pacific. Controversial issues are treated very objectively. The price? - - 65c per copy (including postage).

The Same Kind of People

NATIONAL TRADE UNION CIRCUIT PDOGRAMME 7

Sometimes it is a good ided to get away from every day issues to take a good look at the things we are fighting for, and to get to know the friends who are fighting shoulder to shoulder with us. This month's programme gives us a chance to get acquainted with some of these friends, and to find out how much alike we really are.

On the Screen

- **THE COMMON CAUSE**
- **FIREPOWER**
- **DOVER CLIFFS**
- **FIGHTING NORWAY**

Differences? Of Course - - -

A Chinese soldier and an American airman talking together, and facing bombs together, "somewhere in China" — a Soviet ship's pilot and a British naval officer relaxing after bringing a convoy safely into Murmansk — these are the friends that we meet in THE COMMON CAUSE.

We see them getting acquainted with each other, finding little differences in the foods people eat and the way they eat them, in the games they play, the jokes they tell, the side of the road they drive on, and the way they like to amuse themselves.

But . . . .

When it comes to really essential things they are on common ground. The British officer is just as concerned for the safety of his family in much-bombed Coventry as the Soviet pilot is for the safety of his family who used to live in Minsk before the Nazi occupation. They are both proud of their children — proud of what their children are doing in the war — and equally anxious to get the war over quickly so they, and their children, and all decent freedom-loving people can get on with the job of making a better world. And the Chinese soldier and the American airman, over on the other side of the world, agree on these same things, too.

We Work Together

FIREPOWER shows this same unity among the ordinary freedom-loving people of the world, though in a different way. In it the children and grandchildren of the people who came to this continent from Europe, hoping to find more freedom and more opportunity, are shown busy in American factories making weapons for their cousins who are fighting the Nazis, either from exile or as guerillas in the occupied countries. In it people from all these different backgrounds are shown working together in American factories to produce firepower not only for the American forces but for all the United Nations.

Every one of these scenes could be matched in Canada. Canadians of every origin are fighting together in our armed forces, working together in our war industries, producing supplies for all our allies in this common cause.

Out of Unity Comes Strength

Until recently people and nations were often concerned only with freedom and opportunity for themselves, without regard for the rest of the world. It has taken a common crisis — and a desperate one — to make us realize that no nation can live by itself, and that our own freedom and opportunity to work for better conditions here on this continent depends on what we do to help the people of Europe, and Asia, and Africa, in their struggles for freedom and a better life.

Our friends in the film tuned in their radios to the same news, news of common victories, against a common enemy. Here in Canada we tune in to it, too. For all of us each victory marks a step on the way to fulfilment of our common cause. Are we — the people of Canada — doing all we can to hasten military victory, and to lay the basis for continued co-operation with our friends in every country afterwards?

WHAT DO YOU THINK?

LABOUR QUIZ

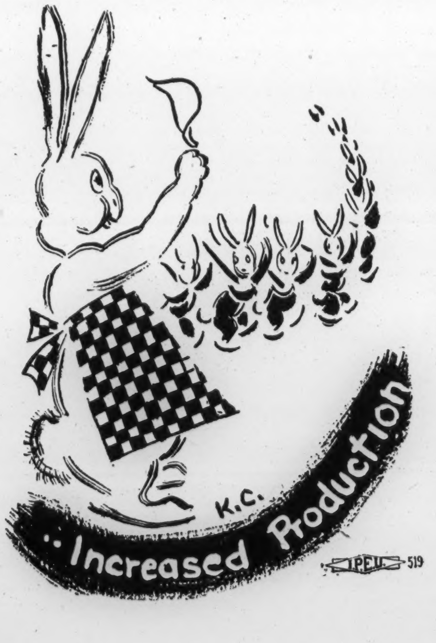
		True	False
1.	China has been in the war longer than any of the other United Nations - - - - - -	....	....
2.	The headquarters of the Free Germany Committee is in London - - - - - - -	....	....
3.	Churchill, Roosevelt, Stalin and Chiang Kai-Shek meet often to plan allied strategy	....	....
4.	The Fighting French are now part of the French Committee of National Liberation -	....	....
5.	The people of the Balkan countries have accepted Nazi rule willingly - - - - - -	....	....
6.	A Czecho-Slovak army is fighting along with the Soviet army on the Eastern Front - -	....	....
7.	Mr. Churchill says that the Sicilian and Italian campaign constitutes the "Second Front" which has been promised - - - -	....	....
8.	Allied strategy calls for forcing Nazi Germany out of the war by air power alone -	....	....
9.	The Soviet Union was consulted on the terms of the Italian surrender - - - - -	....	....
10.	There is no central body on which British, Soviet and American unions are all represented - - - - - - - - - - - - - -	....	....

BEHIND THE VICTORIES

The headlines are so heartening these days that we sometimes forget to look behind them to the human costs. 100,000 civilian air-raid casualties in Britain, millions of people from the occupied countries of Europe deported, murdered or systematically starved, millions dead in China. In the German-occupied areas of the Soviet Union alone it is estimated that nearly twice as many men, women and children have died as there are in the entire population of Canada.

It is difficult to take in such tremendous figures. But all those dead were once, not very long ago, living human beings, with hopes and dreams, with wives, fathers, children, who loved them as deeply as your neighbour loved his airman son, who won't be coming back to the brighter Canada he helped make possible, and who miss them as much as the girl working near you in the factory misses her husband who died in Sicily.

Every day the war lasts add to this toll of death. How can we, from this continent, take a greater part of the burden of the war and press on to a speedy victory?



THE UNION'S PART

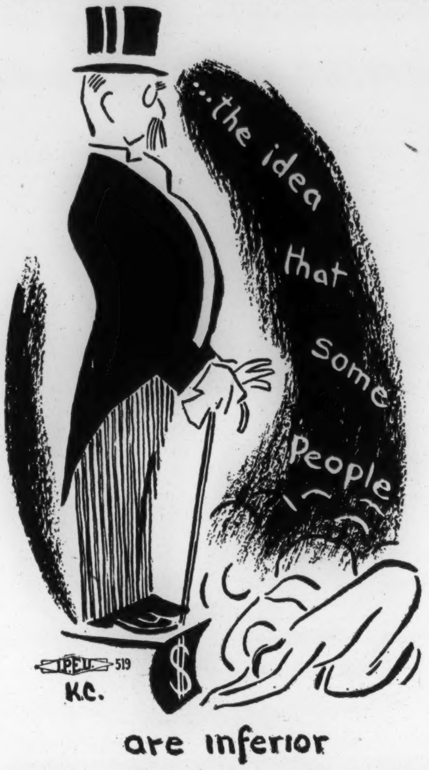
Here are some of the approaches unions are making to their responsibility for cementing understanding among the peoples of the United Nations:

- Increased production and an all-out war effort. Every extra weapon, can speed victory and save lives.
- Attacks on discrimination and racial prejudice at home. The United Automobile Workers, with over 1,000,000 members, has transferred its annual convention from St. Louis to Buffalo to prevent discrimination against its negro delegates.
- Steps towards labour unity. Both the Trades and Labour Congress and the Canadian Congress of Labour conventions in September decided to apply at once for affiliation to the Anglo-Soviet Trade Union Committee.

THAT SUPERIOR FEELING

The chance for the everyday people of this world, all of them, to live their own lives and to work together to make a better life for themselves and their children — that doesn't sound like much to ask, does it?

Yet this new kind of world cannot exist as long as people, and sometimes whole nations, can be hypnotized by silly ideas of racial and national superiority — as long as they believe they are better than other people, and have a right to take whatever they want for themselves. That attitude is essentially fascist.


..the idea that some people are inferior
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K.C.

We have seen this poison work in Italy and Japan, and above all in Germany. But we sometimes forget that it isn't confined to those countries. We forget that we have prejudices, too — there is still discrimination against people with coloured skins and with foreign names — there have been race riots in the United States — there is anti-Jewish feeling in Canada — there is prejudice against the Soviet Union, and the peoples of China and India.

Our enemies are doing their best to use these prejudices to set us against each other now and to prevent us working together to end the war quickly. They will try to use them to divide us and keep us from working together in the peace.

ANSWERS TO LABOR QUIZ

True—Numbers 1, 4, 6, 9, 10.
False—Numbers 2, 3, 5, 7, 8.

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THE SLACKS BRIGADE

In 1939 there were three women working in Canadian industry for every eight men, in 1943 there is one for every two men.

For every two Canadian women at work in 1939 three are at work now. In June, 1943, there were 419,000 women in factory and industrial work in Canada, three for every one in 1939. In war industry alone there were 255,000 women employed.

In 1939 less than one out of every five women and girls over fourteen had a job outside her home, in 1943 it is one out of every four.

Two out of every seven employees in Canadian war industry are women or girls. In manufacturing machine guns seven out of ten employees are women, in instrument factories eight out of ten, in aircraft nearly three out of ten.

Of course there are still women sewing, packing, testing, sorting, just as before the war, but they are more and more invading the machine shops and working with heavy machinery and materials, taking over men's work even in the heavy industries.

Working Women Need Help To Carry Double Job

NATIONAL TRADE UNION CIRCUIT PROGRAMME 8

The girl behind the man behind the gun is hard at work these days making more guns or keeping essential services in working order so the men and women in the factories and on the battle fronts can get the supplies they need.

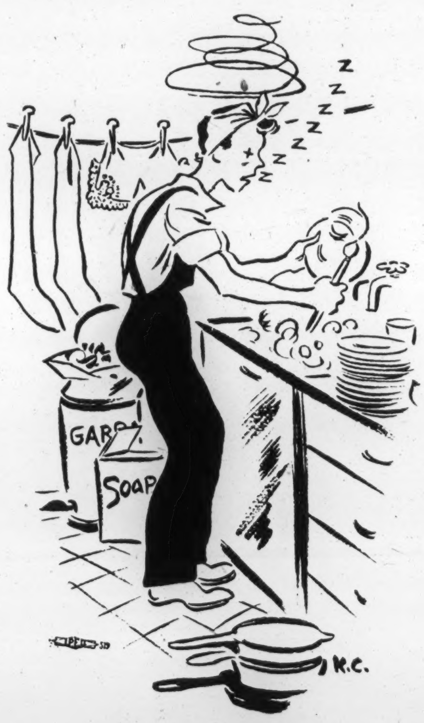
When Jack leaves his job in the shipyard to join the army, and is sent overseas to help push the Nazis back across the Volturno — and the Rhine, too, before long — someone has to take his place making ships, and several more people have to take on the job of making his rations, his uniform, and his equipment, and getting them to him. With some 700,000 young Canadians in the army, navy and air force, most of those new recruits for industry have had to be found among Canadian women.

This Month's Films

- **NIGHT SHIFT,** a British film, emphasizes the importance of the work that women are doing, the varied jobs they are tackling, and the way they are carrying them through.
- **BEFORE THEY ARE SIX,** a new film especially prepared by the National Film Board, demonstrates a practical, constructive way of meeting one of the problems that women are facing in taking on this additional job.

Both these approaches are important. We have often been so concerned with the first step — getting women into industry quickly so production can go on, that we have not given enough consideration to making it possible for them to stay at work.

Our factory and home arrangements, both in Canada and in Britain, have pretty much taken it for granted that the men of the family will do the industrial work. They have not been designed for women workers, and many of them will need changing for women to take their full place on the industrial front.



War Worker Relaxes After Hard Day.

AFTER SHE GETS HER BADGE

Working in wartime industry has been a new experience for most of these women. In the United States it has been found that the groups that have been entering industry fastest are young girls under twenty, and women over thirty-five — probably very few of these have ever done industrial work at all before. But even the girls and women who were already working before the war have been faced with very different experiences with longer hours, shift work, and heavier jobs.

New experiences like these take some digesting, so by and large the new women workers have not yet found leaders among themselves who can put into words the feelings of the women and can work out policies to meet conditions in the plant and home which make it difficult for them to keep up their work. So they try to meet these themselves either by looking for another job where the conditions will be better or by staying away from work once in a while.

HAS YOUR UNION — as large a proportion of members among the women who have just come into industry as among the new men employees? . . . put women in key union positions in proportion to their membership? . . . taken the needs of the women workers into consideration in planning the union programme? . . . taken a lead in asking for day nurseries, school meals, rationing, recreation centres, etc., that will make it easier for women to do industrial work?

When the Little Girl Isn't on the Job

We hear a great deal about the high rate of turnover and of absenteeism, especially among women and girls. Suppose we take a look at some of the underlying reasons.

What About the Children?

Mrs. Roberts in the film is really trying to do three jobs, at the war plant, looking after her home, and looking after Roy. Now that she leaves him at the day nursery, she can go to work feeling confident that he will be kept safe, happy and busy. Of course if he is ill she still has to stay home, but thanks to the medical care at the nursery, that doesn't happen often.

Mrs. Roberts is lucky enough to be working steadily on days, and to be in a war plant. The present nurseries are only for the children of workers directly in war industry and they are seldom open at night. She is lucky, too, that there is a day nursery close by, since up to last June there were only fourteen in Canada, enough for 750 children.

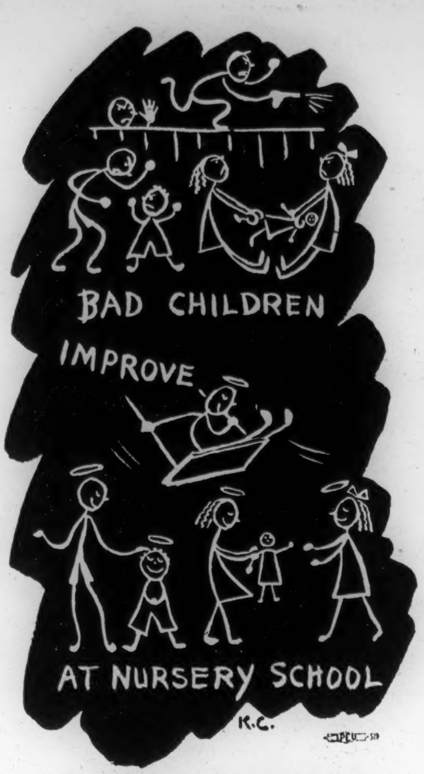
Next door, Mrs. Martin's problem is "after they are six". Of course Janey and Tom — he is ten and she will be eight next week — are at school part of the day, but she wants to be sure they have good hot meals at noon, and a safe place to play after school with plenty of interesting things to do. But last June there were only school supervision centres — only enough for 1,000 children.

The federal government has voted $120,000,000 to help the provinces establish more nurseries and school supervision units. The agreements call for local committees in every community with representatives of organized workers, the health and welfare services, and the schools. But if the children of the women already working are to have this modern service quickly, the mothers themselves, and the workers' organiations in the community, will have to show that it is wanted.

The Job At Home.

With crowded houses, rising prices, and shortages in every store, managing affairs at home taxes any woman's patience and ingenuity, and when a war worker has to crowd it all into the brief hours after a long day of travel and work it isn't much wonder she has to take a half day off now and then.

Many of the girls living away from home have been trying to get their own meals and even those at home are generally expected to help look after the home.



A Child Feels Safe In A Child-Sized World.

But all these extras take energy — and women workers don't have too much of that to spare these days. So far we haven't done very much to meet these difficulties in Canada in comparison with Britain, which has experimented widely with community restaurants, shopping services, and regular time off to catch up on the housekeeping and shopping, as well as with part time work for married women which is just nicely getting under way here.

A Chance For Fun.

Another problem, especially acute for the younger girls, is that industry has gone on to a round the clock programme, but the movies, dances, meetings and games that the girls are used to still run at the same times as before the war. For the girls away from home — and there are thousands more of them than there used to be — there has been the additional difficulty of starting right from the beginning to make new friends and find new activities in a strange community.

Conditions At Work.

Often when women do start in a new type of job they find the working conditions none too good.

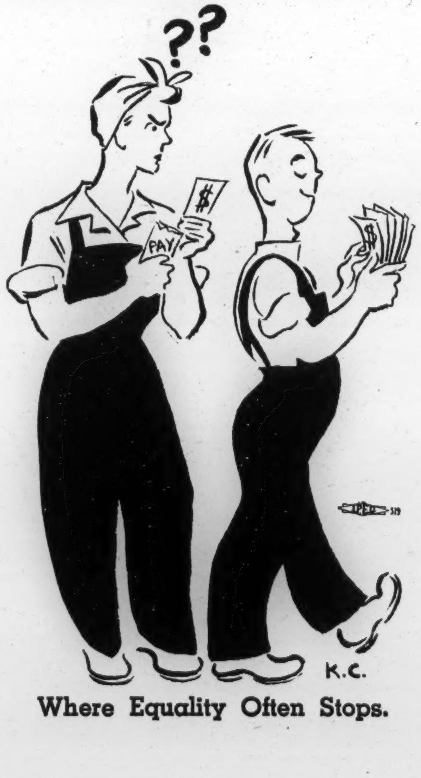
Some of the changes needed are very simple: since women are not as tall, and cannot reach as far easily, the machines may need re-adjusting; since they tire more easily, and haven't as great physical strength, seats should be provided, and materials should be lifted and moved mechanically as much as possible. But these are simply up-to-date ways of cutting down fatigue in industry, and the principles should be applied whether men or women are on the job.

Many of the newer factories have started off with modern standards of ventilation, lighting, cleanliness, and general attention to the comfort of the workers, and even the older plants are finding that these new-fangled ideas are worth while.

Pay for the Job.

Finally there is the burning question of "equal pay for equal work".

The government's wage control order starts from the rates for the job in October, 1941, and forbids increases or decreases without consent of the War Labour Board. It applies to the job, not to the person doing it. If women take over a man's job it would seem that the company does not need to ask permission to pay them the men's rate and is acting illegally if it pays less, unless the Board has authorized it to pay a lower rate for "learners". So the principle of equal pay for equal work is recognized — what about the practice? Some companies have found very ingenious ways of distinguishing between equal output and equal work.



Where Equality Often Stops.

Vol. I **No. 9**

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ILLNESS COSTS IN WARTIME

- Only 60% of the first 50,000 young men called for military service were put in Category "A".
- Canadian wage-earners lose on the average 9½ days from work each year from sickness, and another ½ day from work accidents.
- On June 2, 1941, when the Census was taken, 2 out of every 50 wage and salary earners were away from work because of illness or accident.
- Half of the lost time because of illness could be prevented.
- A National Association of Manufacturers survey of 2,000 American plants found that sickness prevention programmes reduced occupational disease 62.8%, accident frequency 44.9%, absenteeism 29.7%, compensation cost 28.8%, labour turnover 27.3%.
- In one small Canadian plant a health service reduced the number of days lost from work per man because of illness by 70%.

Health Must Be Planned and Paid For

NATIONAL TRADE UNION CIRCUIT PROGRAMME 9

This month's films should start a lively discussion on the best ways of bringing adequate health services to your community.

There are two pictures to start you off:—

- **HEALTH IN WAR,** produced by the National Film Society of Great Britain for the British Ministry of Information.
- **THE COMMON DEFENSE,** produced by the American Medical Association.

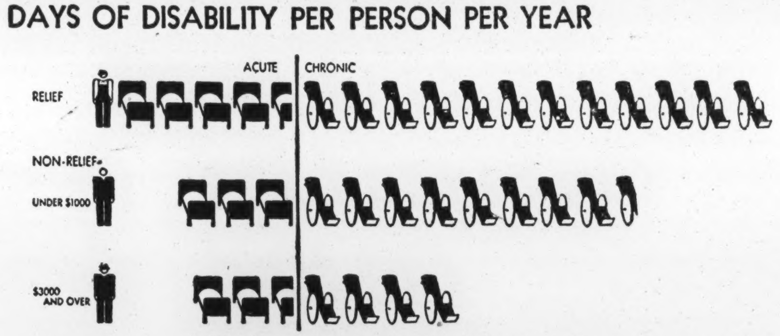
Both of these deal primarily with providing hospital care, which is of course only one part of the broad programme that we need to make sure that our people are kept as healthy as modern science has proved they can be. But they do raise important questions that have to be faced in organizing health services for all the people. HEALTH IN WAR shows the planning of medical care on a national scale in wartime Britain, and the close relation between good health and decent living conditions for the people. THE COMMON DEFENSE shows one of the ways in which people can prepare in advance to meet the costs of unexpected sickness in the family, so they will not be faced at the same time with the double worries of sickness and debt.

Health — 1939

Before the war Canadians, like the British people of HEALTH IN WAR, were moving slowly, but were moving, in the war against the misery caused by ill health. We had got around to setting up public health services in our cities; we had some fine examples of socialized medical services in the municipal doctor schemes in some of the prairie municipalities; and we had provincial health insurance legislation on the books in Alberta and British Columbia though it had not been put into effect.

Such slow progress is, of course, painfully out of date. It left us far behind such countries as New Zealand and the U.S.S.R. which are providing complete health services for their entire populations, and behind Britain and practically all the countries of Europe which have provided at least limited medical services along with their insurance plans for cash benefits during sickness.

WHO CAN AFFORD HEALTH?



Each symbol represents one day lost due to illnesses disabling for one week or more

I.P.E.U. 519 PICTORIAL STATISTICS, INC., FOR PUBLIC AFFAIRS COMMITTEE, INC.

Good Health Is No Accident

One thing we must be very clear about — good health depends on good living conditions and on good health services for everyone. To a person or a family sickness may seem to come as an accident, without warning, but for the community it has been proved very definitely that health is closely related to income. In 1935-36 the government of the United States had a careful survey made of the health of the American people. This chart, taken from the Public Affairs pamphlet **Who Can Afford Health?** is typical of their findings — the people who are within reach of health facilities, and who have money to pay for them and for good food and housing, become ill less often and recover more quickly than the people who cannot afford proper food, housing and medical care. Good health has to be planned for, and it can be bought — for a price.

Please Pass This Sheet On To A Fellow Worker

The Nation's Health Is the Nation's Business

A Health Service Should Include . . .

On three points at least there is no room for question: (1) it should include everyone, employed and unemployed, wage earner and housewife, parents and children; (2) it should be organized to prevent sickness, not just to treat people after they are sick; (3) it should bring the most complete and modern health services within the reach of everyone, whether their incomes are small or large, whether they live in cities or in outlying communities.

Labour organizations would certainly agree with the medical profession on a fourth point — that it should provide an adequate living and decent working conditions for the people providing the health services (all of them, not just a few with specially favoured city practices). And labour organizations would insist on a fifth — that the people whose health is to be safeguarded by the plan should have a democratic representation in its planning and administration.

Health Plans At the Plant.

Considering all that employers have to gain from reducing sickness and accidents among their employees, it is a wonder that far more company health plans have not been started, but at the beginning of the war a Dominion government survey found that only 20 per cent. of the industrial plants had any formal health services at all. An Order-in-Council (P.C. 1550) was passed in April, 1942, giving the Federal Health Department powers to investigate the plants of employers with war contracts for safety and sanitation, and also to order such employers to provide health and food services in the plants. **Getting this Order into effect in the plants is an immediate war necessity, and should be taken up by every union as part of its contribution to full war production.**

What a Group Can Do.

In the last year or so voluntary insurance plans started through the medical profession and the hospitals have been growing very rapidly — in Ontario, for example, Associated Medical Services now has about 32,000 members, and the Ontario Hospital Association, Inc., has 230,000, with about 10,000 being added every month. Similar plans are under way in most of the other provinces. Under the Associated Medical Services plan which is now available all through Ontario, an individual pays $2 per month, and is entitled in return to medical and hospital service (including surgery and specialist treatment) up to a total value of $800 in any consecutive twelve months. The Ontario Hospital Association plan operates just like the one shown in the COMMON DEFENSE — a subscriber has to join through a group, and pays 50c per month for himself or $1.00 per month for himself and his family (including his wife and children under 16 years of age) for insurance providing up to 21 days of public ward hospital care per person.

Some unions have arranged group contracts with a commercial insurance company — a few that have large numbers of members within easy reach have set up clinics providing complete medical services with all the advantages of modern group practice and emphasizing early care to prevent illness. Such clinics are probably too ambitious for most Canadian unions at the present time, but **group hospitalization through the existing hospital insurance plans is within the immediate scope of every union.**

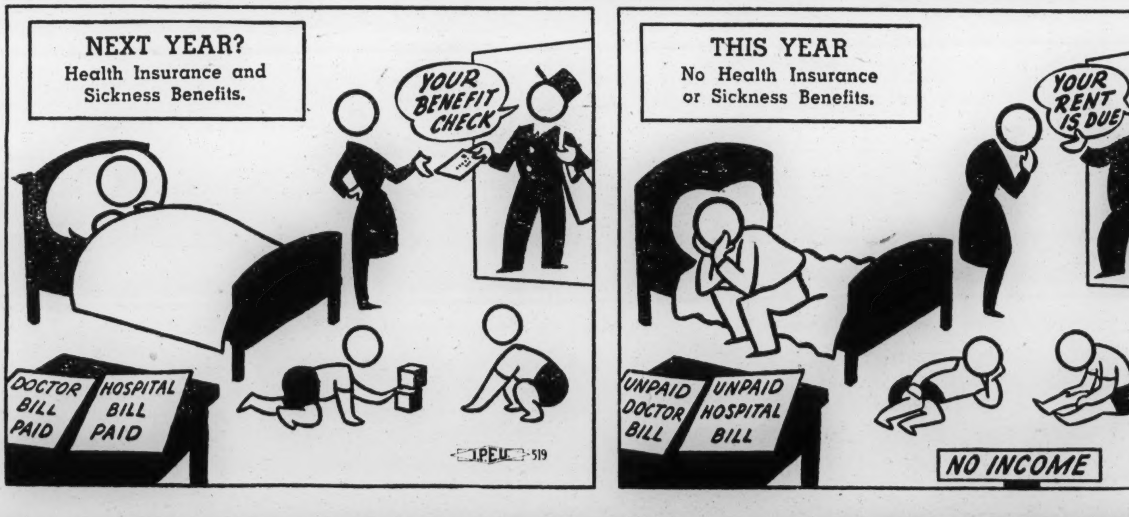
Why not listen to Farm Radio Forum on health every Monday in December at 8.30 p.m. E.D.T.? The Canadian Federation of Agriculture's proposals for a national health plan are outlined in **Health on the March** and **Planning for Health** (the W.E.A. has copies at 10c each).

Insurance or Social Insurance?

But our tests can only be met by some kind of national health plan which is compulsory for everyone. Here the big argument is whether we should have a plan of government health insurance tieing the benefits to the amount of contributions paid in and paying the doctors for their services according to a fixed scale of fees, or whether we should have health insurance that socializes medical services something along the lines of our present school system.

The main arguments presented for the "insurance" system are that patients should have a free choice of doctors and doctors of patients, that doctors work better when their income depends on the services they give, and that people appreciate services more when they make a direct contribution towards paying for them. The supporters of the socialized system believe that the quality of medical service will not suffer if health is treated as a public service like education, that a centralized health service can do more to prevent illness, and that in a country like Canada with large numbers of people self-employed and living in thinly-populated areas it can provide more adequate health services with simpler arrangements for finance and administration.

The workers of Canada will be affected as much as any other group, if not more, by any provisions for health that are made. **What kind of health legislation do you think we should have in Canada, and what can your union do to get that legislation passed?**



—A. F. of L. Labor's Monthly Survey

Vol. 1 No. 10

FILMS FOR FREEDOM

STUDY OUTLINE No. 10

prepared by the
Workers' Educational Association
106 St. George Street, Toronto.
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Talking with a Purpose

NATIONAL TRADE UNION CIRCUIT PROGRAMME 10

This month we have a double bill, and a double set of questions. **ABCA** (the mysterious letters stand for "Army Bureau of Current Affairs") shows us the British army plan for encouraging discussion among the men — why it was adopted, how it works, and what it is accomplishing. **The Price of Victory** is a film version of Vice-President Henry Wallace's great speech about a year and a half ago explaining in simple terms the meaning and the nature of the People's War and the People's Peace.

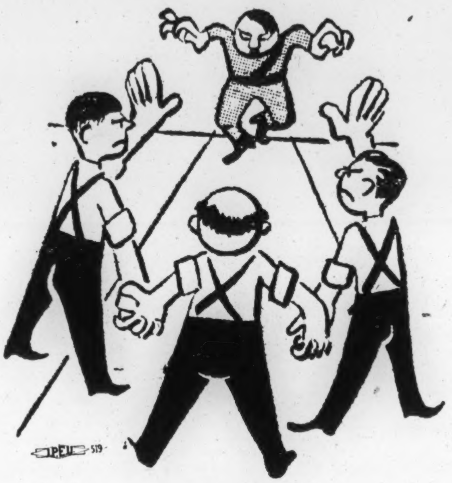
Both films have the same theme — in a People's War, in a war to the death between sanity and fanatical prejudice, every citizen "must know what he is fighting for, and must love what he knows".

THE LAST ATTACK

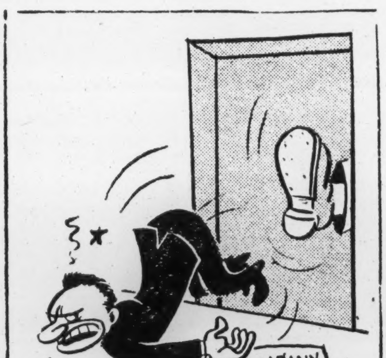
That is a very timely message for us now, with the final decisive battles almost upon us. For now is the time that we must expect our enemies to use their most deadly weapons to divide us.

Here then is our first set of questions. How can we prepare ourselves to meet the "mental blitz", the "psychological terrorism" that we must expect to face in these last desperate months? Are we ready not only for casualty lists from the battle fields, but for a diabolically clever campaign to provoke prejudices and disunity at home — for attempts to foster race hatred, to provoke strikes, to stir up antagonism to our allies, and to encourage doubt and suspicion about the world we are fighting for?

Some Things To Guard Against



(1) Racism
—U. E. News



(2) Labour Provocation
—U. E. News

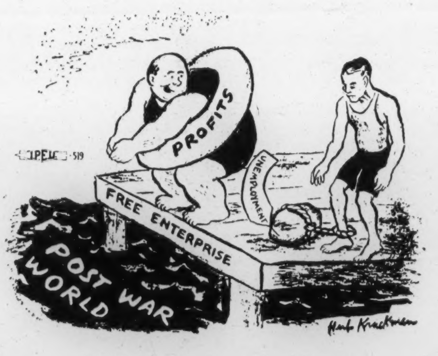
That campaign has started already: it is no use hiding our heads in the sand and pretending it isn't there. The closer we get to victory the more intense it will be. Here too we must go on the offensive. For a free people the surest protection against rumour, prejudice and fear is understanding and intelligent action — free self-disciplined discussion, careful scrutiny of the facts, constant checking of the interpretations to be put on them, persistent effort to see all these day-to-day issues in their proper perspective, all leading to an organized community effort to make sure that first things are put first.

MANY A MICKLE . . .

But in these days of pre-digested news most of us sit back to look or listen and let other people do our thinking for us. Discussion we have been talking about has become almost a lost art. Remember the heated debates at the cross-roads general store on a Saturday night? Everyone had an opinion, and a chance to talk: the discussion went on for hours, it went into great detail about all the affairs of the country, and each person went away sure that he had a vital interest in what was going on and a perfect right to tell his elected representative just what ought to be done.

That was the "frontier democracy" of Lincoln, and of Jefferson, and of our own William Lyon Mackenzie — and it worked as long as the people's world was small enough and close enough for them to feel that they understood it. But ours has got so much wider and more complicated that we often give up trying to understand it, let alone trying to do much about it.

But in the labour movement we have the machinery for organized collective action to use once we know precisely what we want to do. How do we go about encouraging and organizing free, constructive discussion, that will give every member a chance to understand clearly what is going on and to take an active part both in deciding what the union can do and in carrying those decisions into action?



(3) Dissension At Home
—Hat Worker

DISCUSSION PUTS DYNAMIC IN DEMOCRACY

Many unions seem to be having difficulties right at the first step: they have elected an Education Committee and told it to go ahead with a programme — but no one on the committee is quite sure how.

"Do's" for the Group Leader

Suppose we see what principles we can find illustrated in the film:

- The emphasis is on finding out what the facts really are—to be able to meet difficult situations confidently we need to know our opponents' arguments as well as our own and to know why we do not agree;
- The method is discussion, not long-winded lectures — for ideas to become a part of ourselves we have a chance to think them through in our own words, and check them with those of other people;
- The subjects are closely related to the experience of the group;
- Material is on hand giving a general outline with facts and figures, so the group can check their own knowledge and experience;
- The leader starts the discussion very informally, and ties it in with something that the members know about and are interested in;
- He makes the introduction very short and swings into the discussion by asking one of the group for some information or for an opinion;
- From then on he acts as chairman, not as lecturer — his jobs are (a) to keep the dicussion on the subject, (b) to see that it moves on from one aspect to another so no important point is overlooked, (c) to see that everyone has a chance to take part, (d) to try to draw out the ones who are sitting back listening, (e) to sum up the trend of the discussion occasionally, and (f) to open the way for some general agreement at the end of the session;
- The discussion is better when the members do some thinking about the subject ahead of time;
- The group is more interested and gets more out of the discussion when they have material to look at, such as pamphlets, maps or charts;
- The members of the group need to have some responsibility too, both for preparing material (like the wall newspaper in the film), and for carrying through decisions on action.

Of course a union discussion wouldn't be quite the same as the one shown in **ABCA**. There wouldn't be as many "sir's" for one thing, and the union members would certainly feel much freer to dispute a point with the group leader than the soldiers would with their officers. But the principles are good ones for any group to follow, and will go a long way to keep the discussion lively and stimulating.

Three other points are worth adding to the list:

1. The mechanics of the meeting should be planned ahead of time so there won't be any confusion or delay — the chairs should be arranged so the people can see each other, materials on hand, enough light, film ready to use, radio in good working order, etc.
2. There should be a record of what has been said and decided, so the group will not be going back over previous discussions.
3. The discussion should result in some plan of action, and arrangements should be made to put it into effect.

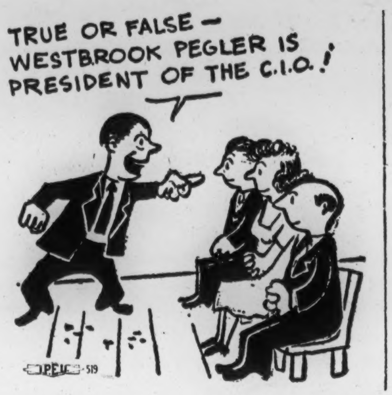
Anyone Can Learn How

Learning how to lead discussion is just like learning to run a machine. You may be clumsy at first, but as you understand it and get experience in operating it you wonder why you ever thought it was hard. Just work over these techniques and methods until you are sure you know why they are recommended and how to apply them to your own particular group, then go ahead and get your experience as you go.

Why We Discuss

The most important thing is to keep clearly in mind that discussion isn't just a chance to air pet theories, or to listen to a speaker with a "name", or to amuse yourself for an evening. These days it is a serious business, and the labour movement is one place where it should be taken seriously.

Most workers in industry today do only one little job — it takes all the workers in the plant, perhaps in several plants, to turn out an airplane that will fly or a truck that will run. The same is true in our social thinking. Remember the story of the blind men trying to describe the elephant who each got hold of a different part of the animal and so ended up with completely different descriptions? We need discussion to put our little parts of the whole story together, to check our interpretations and get them into perspective. Our discussion isn't complete unless we can pool our knowledge and work out together an explanation and a plan of action that is better than any of us could have done alone.


TRUE OR FALSE — WESTBROOK PEGLER IS PRESIDENT OF THE C.I.O.!

—U. E. News

FOR THE LARGER MEETING

A thorough discussion that digs down deep usually has to be carried on in a small group—eight to twelve people is about the right number. But it shouldn't be left out of the larger meetings either.

There are a number of methods that can be used:

1. The Forum.

After a speaker or groups of speakers (a symposium), a film, or a radio broadcast the chairman may throw the meeting open to questions or to brief comments. A skilful chairman can use a few tricks to get the audience to take part, such as turning some of the questions back to the floor and asking for comments or even for a show of hands.

2. The Panel.

This is really a small discussion group taking place in front of the audience — four or five people on the platform prepared in advance to enter into a discussion of the subject among themselves. When they have gone over the ground the chairman may ask the audience to take part too, and if they have set a good example it probably will.

3. The Quiz.

This calls for a good Master of Ceremonies who can keep the programme going at a fast pace. The questions may be either the true or false type, or ones calling for a definite piece of information. If it is done as an individual competition with prizes, one or two discussion questions can be included near the end. The true-false type can also be used as a group quiz, with the M.C. asking for a show of hands on each question and in case of any marked difference of opinion asking the supporters of each view to explain and defend their positions.

Vol. 1 No. 11

FILMS FOR FREEDOM

STUDY OUTLINE No. 11

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A Man and His Job

NATIONAL TRADE UNION CIRCUIT PROGRAMME 11

When this month's programme is over the film you will want to centre your discussion about is sure to be A MAN AND HIS JOB. It raises a good many more questions than it answers, and they are all important questions that we will have to find answers for very soon.

Perhaps some of the newcomers won't remember Joe Martin, and the thousands like him, who walked the streets and rode the freights here in Canada not so very long ago, scanning the want ads, haunting the employment agencies, tramping from one factory gate to another, searching day after day frantically, wearily, hopelessly for a job — any kind of a job so long as it brought the few dimes that meant some food for the kids, shoes so they could go to school, enough on the back rent to keep a roof over their heads for another week.

But it was only ten years ago, and most of us remember very well. And we know now that it isn't necessary or inevitable. In these war years we have seen everyone busy, all our resources at work, new factories being built, production increasing by leaps and bounds. If that can be done in wartime we believe that it can — and must — be done in peacetime too.

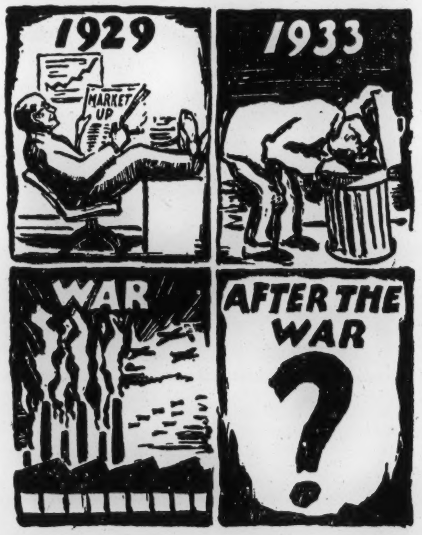
We believe that a man has a right to his job, a right to use his skill at a job he can do, a right to expect his skill to be needed, a right to a continuing share in the nation's progress. In those depression days, too, we felt that something was wrong with the arguments of the people who said nothing could be done, but we were confused and slow to unite and to organize. We protested — we held demonstrations. We asked for minimum wages, works projects, higher relief. But we didn't resolutely and firmly — employed and unemployed united together — insist on jobs for all at decent wages under decent working conditions.

But it isn't enough to say that these things are possible and must be provided for once the war is over. This time labour must know both what is necessary and how to go about getting it. Here's where the questions really start. And here, after pointing out squarely the real problem of making sure there are jobs enough to go around, A MAN AND HIS JOB turns to a discussion of unemployment insurance which is admittedly only part of the answer. How important is this part? And what are the other parts of the broad social pattern into which it must be fitted?

INSURANCE SPREADS THE BURDEN

Unemployment insurance is by no means a new idea, though we didn't have it in Canada until 1940. The British plan, which was adopted as long ago as 1911 and which has been the model for most other industrial countries, was an attempt to combine two different ideas about jobs.

One of these ideas was that each worker was a free agent who should be held responsible for improving his own training, for trying to better himself by harder and better work, and for managing his own affairs so as to keep a reserve against a rainy day: it was considered right and proper that he should contribute to the fund when he was able and that when he was unemployed he should benefit in proportion to what he had paid in. But it must be remembered that at the same time the employee contribution system served the very important purpose from a labour point of view of taking unemployment benefits out of the category of charity and giving organized labour, as the representatives of self-reliant workers who were paying their own way, a right to demand a say in the administration of the whole plan.



—From "C.I.O. News"

The other and newer idea arose from a growing realization that most unemployment is due to the workings of the economic machinery: that at any time some shift in our tastes or some new invention or the decision of some big company to build or not to build a new factory may make the skill of any worker useless and throw him out of a job through no fault of his own no matter how industrious and hard-working he may be. And so it was held right and proper that employers, who were more responsible for such unemployment than the workers and more able to control it, should pay part of the costs, and that the whole community should pay another part since there was always some unemployment that neither individual workers nor employers could be held responsible for.

Unemployment insurance schemes take it for granted that workers should get regular pay only when they are actually working. What they try to do is spread the risk of having to wait around without pay between jobs in such a way that no one worker will have to suffer much more than another. But ever since they have become popular this "between jobs" kind of unemployment has been overshadowed by another kind.

CAN THERE BE ENOUGH JOBS?

The big problem in practically every industrial country ever since the last war has been the fact that in a good many years there have not been as many jobs offered as there have been people willing and anxious to have them.

One reason has been the great increase in industrial efficiency which means that more goods can be turned out by less workers. But often prices haven't gone down or consumer incomes haven't gone up enough to match, so instead of making the large quantities of goods they could produce with the same number of workers, industries have made the same amount of goods (or less) and have employed fewer workers.

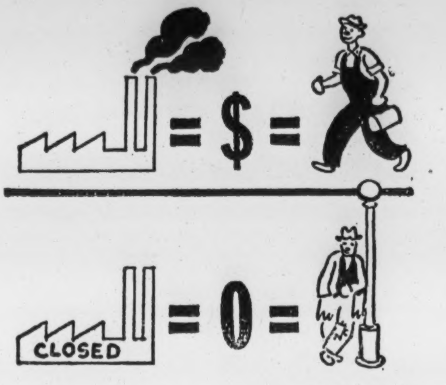
Another very important reason has been big ups and downs in production and in the numbers of jobs. For a while everything booms, — new plants go up everywhere, new machines are needed, jobs are fairly plentiful. Then next thing we know the new plants are all ready, everyone becomes afraid to invest in any more, new plants and new machines are not needed, the workers who usually build them are laid off, and before long the workers in the consumers' industries who usually make the clothes and shoes and so on for these other workers to buy are laid off, too. So we really only have full employment once in a while and for short periods, while most of the time we have considerable unemployment.

And, finally, it must not be forgotten that employers can make a better bargain on wages for themselves when there is a reserve of unemployed or partially employed workers. This reserve, which is fed by immigration from other countries and from the rural areas at home, does not disappear completely even at such a peak of employment as we had in 1929.

More People At Work — More Goods To Divide

The experts say that unemployment insurance can't work if more than about 10% of the people are without jobs and are drawing out benefits instead of paying into the fund. With so many people drawing benefits the reserve funds, they say, would soon be exhausted, and the tax rates on the people still working couldn't be raised high enough to keep up the fund.

Keep the Men and Machines at Work!



—From "C.I.O. News"

But if we just look at the story in terms of money that way we may overlook the real underlying reason why unemployment insurance isn't enough to meet the real problem of mass unemployment. The one person out of ten who hasn't any job isn't able to use his skill to make the things people need for a decent living, so the total amount of goods produced is lower than if all ten were working. In other words, the national income goes down, and there is so much less to go around.

The time and skill that isn't used during a depression is gone forever, and the goods that could have been produced with them will never be made. No country is rich enough to let its resources of skilled and willing labour go to waste like that: it just doesn't make sense to have people who are anxious to work and perfectly capable of making useful things standing around without jobs when we know that there are thousands and millions of people who need the things that could be made. There is no really adequate substitute for a job at decent wages and under decent working conditions except another job with just as good wages and just as good working conditions.

So we will have to see that the space in the illustration on the front of this sheet where the question mark is now is filled in by a picture of busy people going to their jobs in busy factories. That will add up to more dollars and more goods, a higher national income, and a better life for everybody.

APPLYING FOR INSURANCE BENEFITS

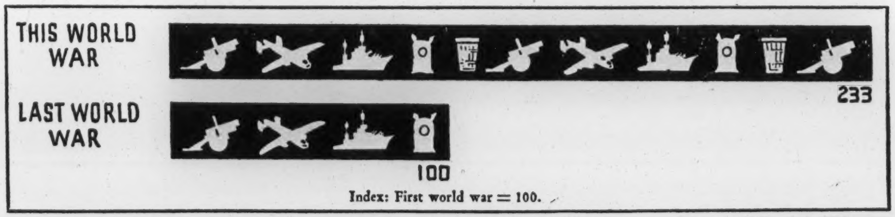
A very large proportion of Canadian workers have been paying into the unemployment insurance fund long enough now to have a right to claim benefits if they are laid off and cannot find a job right away. The film shows how Joe Martin and his friend went about it. Here are some points to remember:

Get your insurance book from your employer before you leave, file your application for employment at the nearest Employment and Claims Office right away, and if there is no suitable job for you, make out your claim for benefits immediately so all the checking on your claim can be done during the nine days' waiting period. Make a claim for every period you are unemployed even if it is only one or two days, because these separate periods are added together to make up your nine days' waiting period.

You cannot get benefits as unemployed if you refuse a suitable job offered by the Employment Office, but you have a right to refuse as unsuitable any job which is not in your usual occupation, or where the wage rate is lower or working conditions are not as good as those in the union agreement or as those on your last job, or where you would be required to give up your membership in the union, or which is open because of a labour dispute.

If you have any complaint against the insurance officer's decision you can appeal to the Court of Referees within 21 days, and from them to the Umpire, and you have a right to be represented by your union.

Here are some policies that have been suggested for Canada. Which do you think would give more chance of jobs at decent wages after the war, and why?
—higher (lower) wage rates?
—more (less) government controls?
—more (less) government spending?
—more (less) collective bargaining?
—more (less) immigration?
—more social insurance?



Production Per Man Per Hour in the United States in Two World Wars

(Figures are for manufacturing, including both military and civilian goods.)

—Chart from "A.F. of L. Labour's Monthly Survey"

Vol. 1 No. 12

FILMS FOR FREEDOM

STUDY OUTLINE No. 12

prepared by the

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106 St. George Street, Toronto,

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FACTS TO REMEMBER

- Nearly 1¼ million young Canadians from 15 to 24 are employed or in the forces.
- Over half of these will have to change their jobs at the end of the war.
- A higher proportion of young people than of adults were unemployed before the war. In the United States the unemployment rate among young people 17 to 21 was 40% during the depression, compared with 20% for adult workers.
- In the years from 1931 to 1941 young people had to wait an average of two years after they left school before they got jobs on which they could support themselves.
- The waiting period between leaving school and getting work has been getting longer in Canada for the last thirty years.
- 40% of Canadian children attend one or two room schools.
- Nearly half the young men examined for the army have been found physically or mentally unfit. Nearly half of these could have been given sufficient treatment over a short period and at a small cost.

Young People in the Unions

NATIONAL TRADE UNION CIRCUIT PROGRAMME 12

Remember the kids "riding the rods" in the depression scenes from **A Man and His Job** last month? The main film for this month's programme, **"Battle Is Their Birthright,** shows what young people very much like them, perhaps even the same boys or their younger brothers, are doing now to speed victory.

Quite a Contrast, Isn't It?

Instead of the "no work" signs, the soup kitchens and relief camps which met them then young people are now finding a welcome in the forces and in industry. The community provides the young soldier with food, clothing, expensive equipment and training, an allowance for his wife and children, and no one complains about the cost. There is a challenging job waiting for every boy and girl on leaving school, a job fitting in somewhere in Canada's war programme.

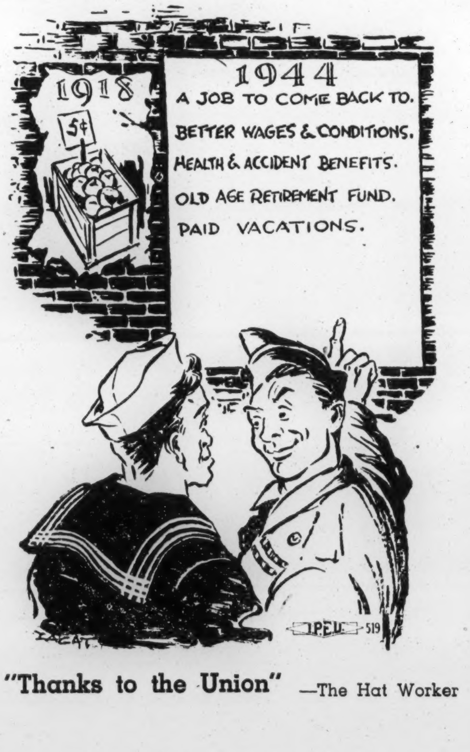
More than any other group in the whole community the late teens and early twenties have been called on for direct war work, to fill the ranks of the armed forces and to man the war industries. Canada has needed its young people as it has never needed them before, and, as young people always do when they feel they have a real and responsible place in the community, they have risen to meet the challenge.

What is your union doing —

- **To back up the young people in the forces and to let them know you are behind them?**
- **To bring the young people in your industry in to the union, and to meet their needs both on the job, and in getting proper food, housing and fun?**
- **To plan jobs for the thousands of people, most of them young, who will be coming back from the forces or displaced from war industries?**

We're All Interested

Your local may be one of the many that has not given much attention to the special problems of young people, but isn't it about time to take a look at their point of view? Those in industry now have a very direct reason for wanting to discuss their chances for jobs and decent wages after the war, and if you have some of them in your local they will probably jump at this chance to get their word in. But the older members of the union have more interest in the youth question than they may have realized, and they have a responsibility too for doing something about it. It is their sons and daughters, their younger brothers and sisters, who will be coming back from the forces and leaving the war industries to look for civilian jobs. And it is their children who are going to grow up under the policies, whatever they prove to be, affecting young people that are made part of the post-war plans.


1918
5¢
1944
A JOB TO COME BACK TO.
BETTER WAGES & CONDITIONS.
HEALTH & ACCIDENT BENEFITS.
OLD AGE RETIREMENT FUND.
PAID VACATIONS.

"Thanks to the Union" —The Hat Worker

Allies for the Union

The trade union movement has a very special interest at stake in those plans, too, because it is from the young workers and servicemen of today that it must draw the membership that will give organized labor strength after the war. Labour organization has been spreading rapidly, but it is still nothing like as strong in Canada as in other industrial countries, and it still has bitter struggles for full recognition and for better conditions ahead of it. Those young people are judging the trade union movement now, day by day, as they see it in action. It would be fatal to allow new divisions between the armed forces and the workers at home, between war workers and those making civilian goods, between the younger workers and those employed before the war.

Young People Want Jobs

The first, and most basic problem, of the half million or more young people now in the forces or in war industries who will have to find their place in peace time industry is, of course, finding a job. And while they are trying to establish themselves there will be almost as many more boys and girls newly out of school looking for their first jobs, youngsters who have been growing up at a time when every hand is needed and who have seen the classes ahead of them off to the army or to work as soon as school was over.

Back from the Forces

Most of the young people in the forces did not have regular civilian jobs before they joined up, so the provisions requiring employers to rehire workers who left to enlist will not mean much to them. They have had plenty of training, and often chances for education and for technical training that they never had before, but most of it has been specialized and does not give them skills that employers are willing to pay for. They will have the right to free training for civilian jobs, or to out-of-work benefits while they look around for work, but under either plan their incomes will be at the level of unemployment insurance benefits (though there is more provision for dependents) rather than real wages, and they will have to pay themselves for a great many things that have been provided for them in the army. They will have preferences in employment, but many of them will be handicapped and many more will find it hard to adjust to civilian life again.

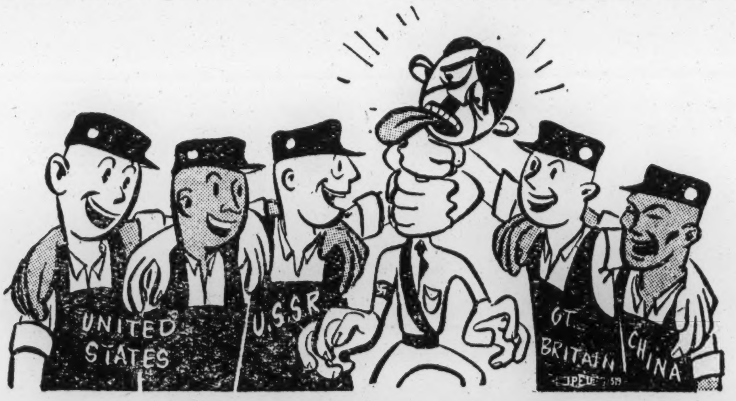
The War Industries Close

Under the schedule to guide Selective Service in lay-offs of workers in war industries, which has just been put into effect, young workers without family responsibilities come high on the list, because they are more adaptable and more easily moved to other areas where the need for workers is more acute. This is a reasonable provision now when the problem of transferring workers to essential jobs is still pressing: but will it be taken as a precedent in the more general shift out of war industries? If there is any scarcity of jobs these young workers may have a long time to wait before they can get started in civilian work after the war. The young people who have worked only in war industries will also have specialized skills and experience that may not be in much demand, and they too will need retraining for civilian jobs.

When Training Is Over

In any case re-training is only half a solution if there are not enough jobs for these young people to go to once their training is over. We have already seen one quick change from the depression to the war, from "tramps" to "heroes"; the young heroes of today want a chance to do as constructive a job in peace as they are doing now. One young lad summed up his experiences during the depression this way: "Jobs play the biggest part in your life and they're so uncertain. When you've looked and looked, you get the feeling that nobody has any use for you. It takes away all your self-confidence."

Right now Canadian young people have great confidence in the job they are doing, in the prospects for building a happier, better Canada for everyone after the war, in the United Nations and better relations with all freedom-loving people to bring peace and co-operation and friendship everywhere. But young people who have been called on to do an important job in a real national crisis, and who know they have done it well, will be bitterly hurt if they find themselves shouldered aside when the crisis is past.



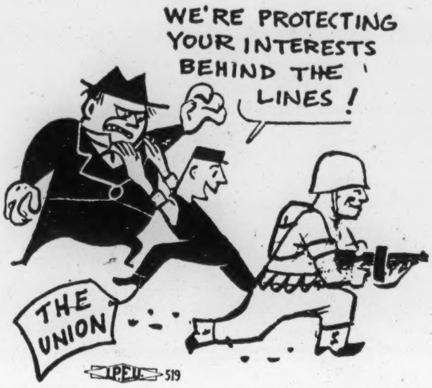
New Deal for Youth in the Making

—U. E. News

How Much Is Enough?

So both young people and older workers have good reason to insist on making "full employment" the first objective in post-war policies. But it won't be enough to aim at about the same level of employment as we had before the war.

Can we make sure there is a real job for every boy and girl finishing school and also make the preparation for that job so inexpensive and so interesting that the young people will stay on at school longer than they do now?


WE'RE PROTECTING YOUR INTERESTS BEHIND THE LINES!
THE UNION
I.P.E.U. 519

—U. E. News

UNION YOUTH OPINION WANTED

The Canadian Youth Commission is planning a series of Public Hearings in every province this May to which young people and organizations interested in the problems of young people are invited to give evidence and to make recommendations. They would welcome suggestions from the unions. All you have to do is to write to the Commission at 3 Willcocks Street, Toronto.

The Commission is a private body of prominent Canadians, including three trade union representatives, who have undertaken to make a special survey in Canada, and to make recommendations to the government on post-war planning as it affects the young people. They are anxious to get the opinions of the young people themselves and of all organizations interested in youth questions, and have already sponsored a conference of Ontario young people which was attended by 470 registered delegates including 34 from trade unions. Similar conferences will be taking place soon in other provinces.

Since the Commission has started work the organizations of young people in a number of cities across Canada have started local Youth Committees made up entirely of the young people themselves, who are working on their own problems and making preparations to present their views at the May hearings.

Vol. 2 No. 1

FILMS FOR FREEDOM

STUDY OUTLINE No. 13

prepared by the
Workers' Educational Association
106 St. George Street, Toronto,
for the
National Trade Union Film Circuit
Sponsored jointly by the National Film Board, the Workers' Educational Association, the Trades and Labour Congress, and the Canadian Congress of Labour.

Thistle Printing Co., 76 Duke St., Toronto

Time For a Joint Committee

NATIONAL TRADE UNION CIRCUIT PROGRAMME 13

Back at the beginning of the Film Circuits, **Our Film** showed a joint labour-management committee in full swing in a British factory. This month we have a complete **Report on Labour Management Committees in Britain** showing how these committees have gone about increasing wartime production and making every working hour and every scrap of material count for victory.

Three things stand out in this **Report** and go a long way to explain the success of the British Committees:

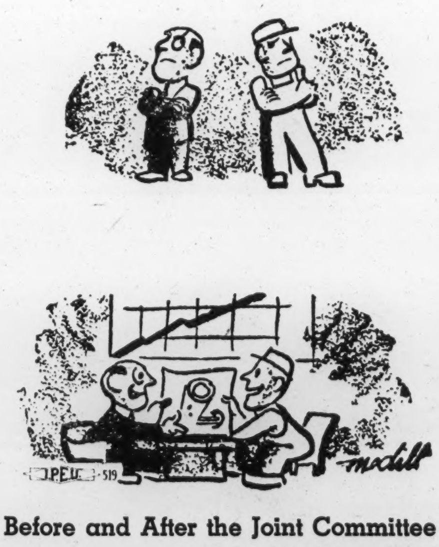
- **Trade Unions are completely accepted, and all the workers' representatives on the joint labour-management committees at every stage are union members.**
- **There is a complete machinery for joint discussion on production, beginning with joint committees for each department of the factory, and going on to joint committees for the factory as a whole, for the region, for the industry, and finally to the National Production Advisory Council which meets regularly with the Minister of Production.**
- **The joint committees are concerned with every kind of problem that affects production no matter how it arises, and when they agree they make their recommendations to whatever group has the power to take action that seems to be needed. They cannot force their recommendations on anyone, union, company or government. But they can, and do, take up every kind of proposal that shows promise of breaking a bottleneck or bringing more and better production, and they investigate all these proposals thoroughly.**

It took most of a year after Dunkirk to get labour representation in the British Cabinet and on the various government Boards fully in working order, and it was well on in 1941 before the shop stewards in the war factories worked out this way of giving every home front worker a direct say in the war programme. Now there are 4,000 active joint production committees in the metal industry factories alone, and many others in the coal mines, in shipbuilding, and in other industries. The government set the example for private industry by making an agreement with the Amalgamated Engineering Union for all of its Royal Ordnance factories, and government spokesmen have often paid tribute to the important part the joint committees have played in increasing British production.

On the whole Canada is still far behind Britain and the Soviet Union (where every union had its Production and Inventions Committees even before the war), but that is all the more reason for every union getting to work on these committees right away. A couple of months ago Ottawa set up an Industrial Production Co-operation Board to help labour-management committees to get started. This time there is an advisory committee made up of union and employer representatives, so the unions can see that it means business.

Even at this late date there are still plenty of war problems for a production committee — the reserves of war materials will disappear very fast when the large-scale invasion gets under way and besides, with proper planning, every saving of time and of materials anywhere in industry can cut war costs and reduce the burden on people with low incomes.

There is another reason, too, for getting to work to set up these committees. Up to a few months ago, most people thought they would be forgotten promptly the day the United Nations troops march into Berlin. But now it looks as if they are here to stay.



Before and After the Joint Committee
—Labor Management News

Labour Representation

Canadian trade unions now have equal representation with employers on the National War Labour Board (administering the Wage Order), on the Wartime Labour Relations Board (administering the Labour Code), on the Advisory Committee to the Industrial Production Co-operation Board (to encourage joint labour-management production committees), and on the Minister of Labour's Consultative Committee.

There is a union member on the Board of Directors in eight of the twenty-five Crown Companies, and one labour representative on the Crown Assets Allocation Committee. Organized labour also has representatives on the National Selective Service Advisory Board, on the Unemployment Insurance Advisory Committee, and on the National Employment Committee (under the Unemployment Insurance Act).

In the regional administration of wartime orders there are equal numbers of representatives on the Regional War Labour Boards, and similar arrangements seem likely for the Labour Code where it is accepted by the provinces. Regional Advisory Committees on manpower have been set up this year to consult with Selective Service, and to assist in planning an orderly transfer on wartime jobs now and from war to civilian industries later on.

Start Them Now

Both unions and managers in Britain have learned, the hard way, that they have a much more important job to do just now in fighting Hitler than in fighting each other. They have had a very immediate and concrete issue to get together on. The first job is to get rid of Hitler and everything he stands for. And the way people in industry can do that best is by increasing the output of everything that a nation at war needs most.

They Go Beyond Collective Bargaining

All this was new in Britain. There was plenty of collective bargaining in industry, and it was taken for granted that organized labour should have representatives on government boards dealing with labour questions: that battle for recognition had been won long ago. But the union's chief job was still bargaining for better working conditions and protecting those built up in the past. Relations with other countries were "Foreign Office business," national policy was "government business," and the organization of industry was "management business" — the unions had very little say there.

Even the labour appointments to the War Cabinet after Dunkirk at first were also intended mostly as a protection for the workers against wartime changes in working conditions. So these joint committees starting right in the factory departments gave workers their first real chance to sit down with the employers, as equals, to work out together problems affecting the whole community.

They Go Beyond the Single Plant

When they got down to studying conditions in their own plants, they found opportunities for increasing production in all sorts of fields. Some of the proposals were technical — changes in machinery, in materials, etc. Others called for improved plant organization such as better planning in the use of labour and of materials, and improvements in layout. Still others involved the welfare of the workers themselves, including improved health services, housing, transportation, and food supplies. Others were concerned with making sure that each person on the job understood its importance in the war program.

Many of the problems had to be tackled on an industry scale or through a broad community organization. So from the joint production committees in the factory, unions and management went on to meet together on production and manpower problems for their whole industry or their whole region, and also to all sorts of community activities.

That is a very important reason why this new drive for labour-management production committees in Canada deserves full union support. It is one of the ways in which Canadian unions can take their full part in affairs affecting the whole community — part of the move from concentrating just on protecting wages and working conditions, into the much broader field where organized labour can take a real lead in everything from a local public housing project, to national plans to maintain employment, and international unity to prevent another war.

KEEP THEM AFTER THE WAR

As the union and management representatives on these British committees have worked together on the immense job of increasing war production they have found themselves coming closer together in other ways too. The unions, which started from the tradition of protecting the worker's interests on the job, have become very interested in using this vast production machine to the full and making it more efficient in order to raise living standards. The managers, who started from a tradition of the "management right" to run industry in their own way without any labour interference, have become much more concerned about living standards and keeping up employment so there will be someone able to buy the goods they can turn out.

We'll Still Need to Act Together

After the war there will be plenty of problems — getting industry converted back to making shoes and dishpans and homes to live in instead of war supplies; making sure that there are jobs enough to go around; raising living standards at home and in other countries so all the goods that can be produced from our new factories can be put to good use by people who need them; getting international affairs on a basis that will prevent more wars from starting. They are big jobs, and will take the united efforts of all the people who are concerned about a better kind of world to live in.

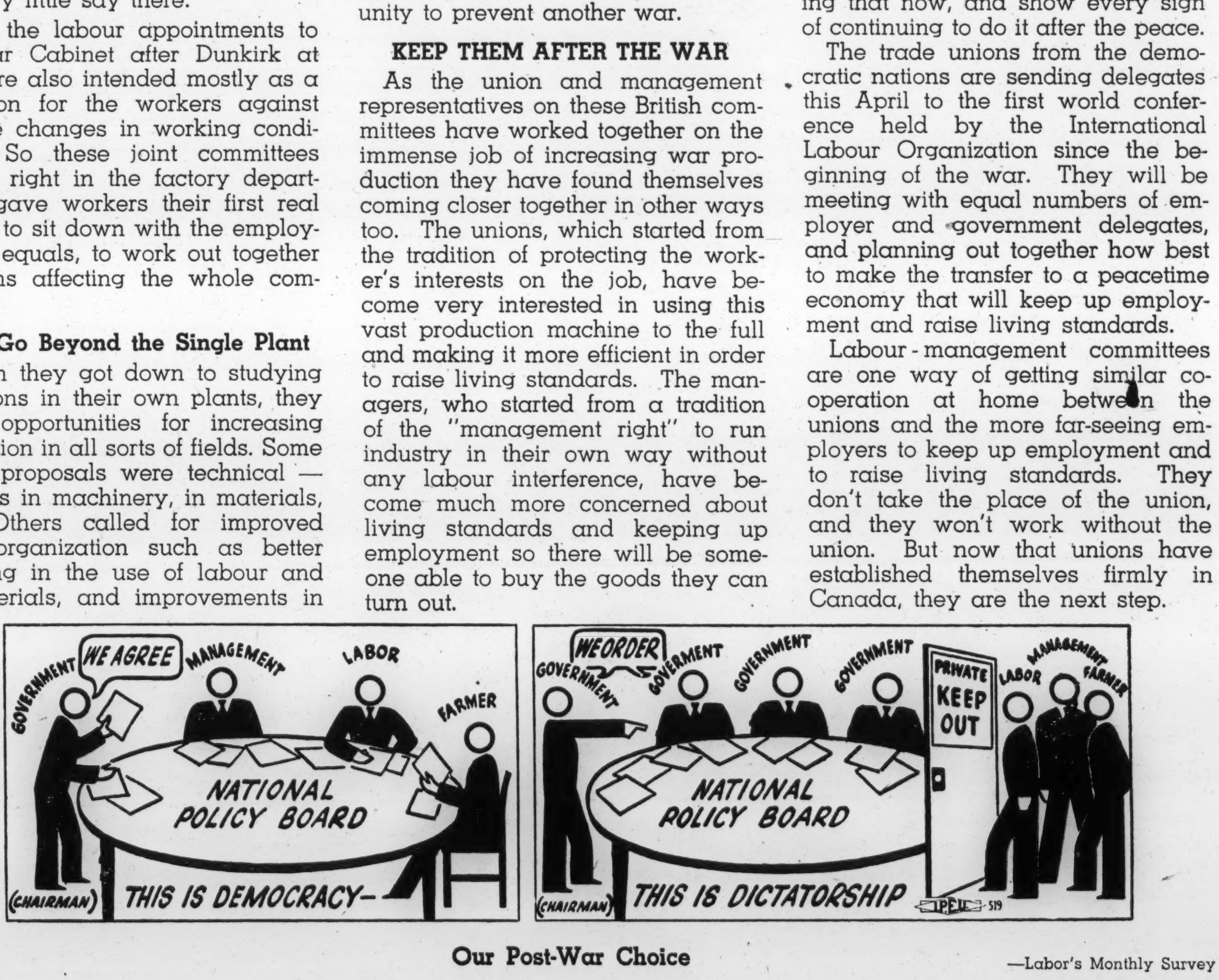
We know that the war against the things Hitler stands for will not be ended by an armistice or even a peace treaty, until the things that have made it possible for Hitler to drag the world into war are dealt with. That is going to take international co-operation on a grand scale for a long time to come.

We've Already Started

On a world scale that means nations are going to have to work together even if they have different ways of running their own economic affairs — the United Nations are doing that now, and show every sign of continuing to do it after the peace.

The trade unions from the democratic nations are sending delegates this April to the first world conference held by the International Labour Organization since the beginning of the war. They will be meeting with equal numbers of employer and government delegates, and planning out together how best to make the transfer to a peacetime economy that will keep up employment and raise living standards.

Labour-management committees are one way of getting similar co-operation at home between the unions and the more far-seeing employers to keep up employment and to raise living standards. They don't take the place of the union, and they won't work without the union. But now that unions have established themselves firmly in Canada, they are the next step.



Our Post-War Choice

—Labor's Monthly Survey

Vol. 2 No. 2

FILMS FOR FREEDOM

STUDY OUTLINE No. 14

prepared by the
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Thistle Printing Co., 76 Duke St., Toronto

CREDIT SOURCES AS THEY ARE

- The regular banks have been developing a small loan business lending at interest rates which work out to about 12% per year, often with a service charge in addition. They ask considerable security and backing, and it has been estimated that 90% of the people are not really eligible for their small loans.
- Personal finance companies do a larger part of the workers' loan business. In Canada the legal limit to the interest rate they can charge is 2% per month on the balance of the loan which has not yet been paid. That actually works out to an interest rate of 24% per year on the money that the borrower has the use of.
- Another big source of credit is installment buying. In this system the store that sells you the new stove sells you credit too, and the installment price includes a handsome margin above the cash price. This is really a charge for credit. In the United States it has been estimated that the average cost of installment credit is about 20%, and special investigations have found the charges on furniture varying from 6% to 55% and for radios from 11% to 98%. Besides, if for any reason you are not able to finish your payments, the company can always take back the article it sold to you.

The People Keep the Purse

NATIONAL TRADE UNION CIRCUIT PROGRAMME 14

When we buy a Victory Bond these days the government agrees to pay us 3% interest. Most of us think that is a pretty fair bargain: if we put in $100 and leave it for a year the government pays us $3, just for letting them have the use of the money instead of keeping it on hand to spend ourselves. We would be very surprised if we were offered $12 instead of $3, and if the government started offering us 24% interest ($24 for the use of $100 for a year) we would be sure it was throwing away our tax money.

But when it comes our turn to borrow — and who doesn't need to borrow once in a while to meet some unexpected expense? — we pay all kinds of outlandish interest rates without even realizing it. One solution open to all of us is shown in this month's film, **The Peoples' Banks.**

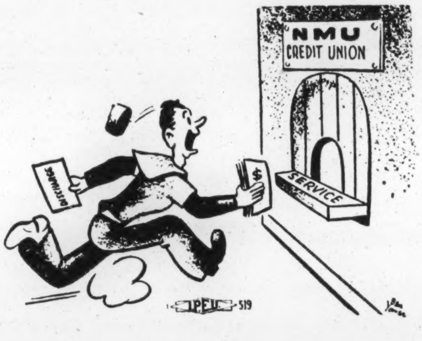
Matching What Comes In and Goes Out

It takes a lot of scheming and planning in most families to make sure that the money going out matches the money coming in each month. Of course the first trouble is usually that the amount coming in just won't stretch to cover the rent and all the food and clothes and so on that the family needs.

But even the families that have enough to get along on share in the second difficulty about making income and expenditure match. Perhaps you could find the money each month for a twelfth of a bag of flour, or a twelfth of a new stove, or a twelfth of an appendicitis operation — but you can't take them a bit at a time like that. You have to buy the whole bag of flour or the whole new stove, and to have the whole operation. So the bill comes in all at once, and then you have to scurry around to find some way of paying it.

Credit for the Family

Nowadays you probably have at least some savings set aside where you can get at them easily, in a savings account or in war bonds. Probably, too, you make a practise of setting aside out of every month's income about the average amount you expect to need per month to cover the cost of things that have to be bought in fairly large quantities at a time. If you make a good enough estimate of these average expenses you can use your savings account as a sort of balance and yet end the year with the bills paid and the savings account just as high as it was at the beginning. What you really have done is supply your own credit needs out of your own savings.

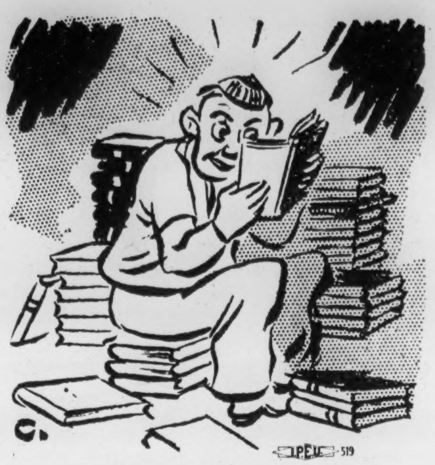


This is how one credit union connected with a trade union advertises itself to the union members. In addition to the regular work of making loans and accepting deposits this credit union in New York City for members of the National Maritime Union serves as a very obliging bank for union members whose work keeps them away from regular banking facilities for long periods. They can allot money to it while at sea to be ready for their return, and they can also arrange for it to take care of all sorts of payments for them while they are away.

But if you run into some unexpectedly large expense, or your savings are either too small or too difficult to get at to use this way, you will be needing credit from someone else. There are quite a variety of ways of getting credit, but the ones open to people with small income who hasn't much security to offer are apt to be very expensive.

More and more workers and people with small incomes are setting up their own people's banks — the credit unions. They are the simplest and most universally useful form of co-operative. They appeal to everyone. They are simple to operate, and they meet a real economic need.

"W.E.A. LIFETIME HOME"
A LIFELONG INVESTMENT
Buy a Share To-day!



Learning to Keep the Books

WHAT IS A CREDIT UNION?

A credit union is a "peoples' bank" through which they can pool their own resources and finance their own needs for credit. The main differences between a credit union and the ordinary chartered bank are these:

- The credit union has a definite group of members and deals only with them;
- It is democratically controlled by the members themselves;
- It specializes in comparatively short term loans which are made only to its own members and only for useful purposes;
- It grants loans on the basis of character, and judges the borrower by his reputation for honesty rather than by the securities he can deposit;
- It encourages systematic saving by the members;
- It operates simply and at low cost;
- It turns all the profits back to the members.

How Have Credit Unions Developed in Canada?

At the end of 1941 Canada had 1,316 credit unions in operation with more than 238,000 members. Nearly half of these credit unions are in Quebec, where they have been very widely used in rural communities, but there are credit unions reported from every province and from a great variety of groups.

In the towns there are a number set up by members of the same trade union — the Street Railwaymen in Vancouver have one, for example, and so have the Auto Workers in Oshawa. In a good many plants where collective agreements have been signed recently there are already active credit unions whose members have an experience in conducting business and handling money that will make them very useful members in the union.

How the Credit Union Operates

A credit union is run by the members themselves. After a thorough study of the subject and a careful survey to make sure that there is a real need, a meeting is held with a capable speaker on hand to explain how to go about setting one up. Once it votes to go ahead the application for incorporation is filled out and sent in to the provincial government, and another meeting is held to elect the first permanent officers, directors, and committeemen.

The prospective member must belong to the group covered by the credit union (the community, factory, or trade union), he must be elected to membership and he must subscribe for at least one share (usually valued at $5) which he may pay for in full or by regular installments. Each member has one vote no matter how many shares he may own, and he cannot delegate that vote to anyone else. The members elect the four committees which carry on the administration.

Most of the funds come from the shares which the members buy and from their deposits. In Canada now the deposits make up the greatest part of the total funds. The main purpose of the credit union is to put the resources of the whole group to better use, so a large part of the funds should always be out on loan to the members. For small loans — up to $50 or $100 according to the province — no security is required, and the Credit Committee needs consider only the character of the person asking for the loan and the purpose he wants it for.

In one employee credit union where the record has been broken down carefully the chief reasons for loans were paying off medical bills, consolidating bills and paying off overdue accounts, taking advantage of lower cash prices for automobiles and furniture, buying clothing, paying for home or car repairs, paying for vacations, reducing interest rates on outside loans, paying insurance premiums, and paying taxes on homes.

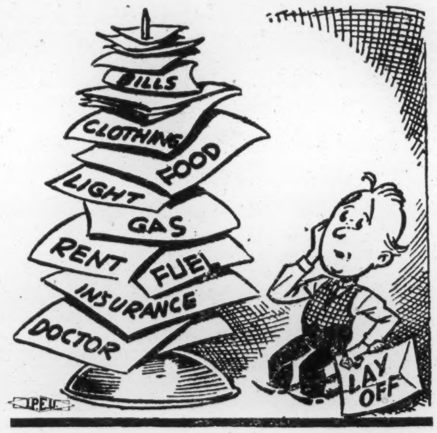
The credit union does not have high paid officials, its bookkeeping costs are low, and it has little risk of loss, and little cost of collection. Consequently it is able to lend money at interest rates of 1% to 1½% on the unpaid balances (equal to 12% to 18% per year). At the end of the year the borrower gets a further deduction from the costs of his loans when he shares in the profits for the year's operations. After provision is made for the reserve fund and the educational fund the remaining profits are used to pay dividends on the shares, interest on the deposits, and perhaps to give a rebate on the interest paid on loans. The percentage of credit union losses through bad debts or mismanagement of any kind is amazingly low — only about 10c on $100.

Credit Unions and the Co-Operative Movement

The labour movement has always shown considerable interest in the possibilities of organizing together as consumers to reduce prices, and the co-operative movements of such countries as Britain and Sweden have attracted a good deal of attention. On this continent there have been special difficulties in the way of a large scale consumers' co-operative movement, and a co-operative retail store in any of our cities has to have a fairly large assured market right from the start to have much chance of success.

Under these conditions the credit union, which can start small and grow gradually and which can definitely reduce credit costs for large number of people, seems to be the most promising form of co-operative to begin with. Like the others it is a very valuable training ground for working people and farmers. Through it they can learn a great deal about business methods and administration, and can prove through their actions that they can do just as good a job of management as the management experts themselves can.

One of the Times that Income and Outgo Don't Match



—C.I.O. News

File on Defense Films

Robinson

OFFICE OF WAR INFORMATION
WASHINGTON

June 1, 1944.

Dear Friends:

John Grierson, brilliant leader of the British documentary film producers, and since 1939 Canadian Government Film Commissioner, will be the speaker at our next luncheon meeting on June 7.

Grierson holds the respect and admiration of the whole documentary film movement. His leadership during the past fifteen years in the making of fact films has been world-wide. He was responsible for the production of a long list of documentary films on many social problems in England and the British Commonwealth. Grierson is an outstanding creative leader who inspires extraordinary devotion and performance in a large group of intelligent and hard-working documentary directors and cameramen.

Congratulations are in order to the U. S. Department of Agriculture and to Chester A. Lindstrom on his appointment as Chief, Motion Picture Service, U. S. Department of Agriculture.

Last week, Donald Bean, former head of the University of Chicago Press and now Educational Consultant for the National Association of Visual Education Dealers, provoked a great deal of interest when he spoke at the luncheon meeting on the topic, "When Peace Comes." The meeting was attended by 60 persons including members of the Board of Directors and Officers of NAVED.

Time: 12:30 P.M., June 7.
Place: Lobby Floor, Roger Smith Hotel
18th and Penna Ave. N. W.

To protect yourself and guests, make your reservations at once.

RE 7500, Ext. 75337.

Faithfully,

C. R. Reagan

C. R. Reagan, Head
Non-Theatrical Division
Bureau of Motion Pictures

FOR VICTORY
BUY
UNITED STATES
WAR
BONDS AND STAMPS

crr/abs

All items contained in this publication refer to Canadian 16 mm distribution only unless otherwise specifically stated.

National Film Board NEWS

PUBLISHED BY THE DISTRIBUTION DEPARTMENT OF THE NATIONAL FILM BOARD
BOLTON STREET — OTTAWA, CANADA

NO MORE SUB-STANDARDS

TECHNICAL IMPROVEMENT OF 16mm SOUND MOTION PICTURES

Not so long ago the "sub-standard" or 16mm film was generally regarded as suited only for amateur use. For enthusiastic film collectors a few classic theatrical productions were available on 16mm for home and other private showings. The majority of film in circulation, however, was shot and projected in 35mm (theatrical) size, the type used by professional film producers all over the world.

Recently, this ratio underwent a profound change. The demand for 16mm production and projection rose as audiences grew in schoolrooms, factories, farming communities, training camps, adult education classes. With this increase in demand the number of films made especially for these audiences began to grow.

As a result, more and more effort is being devoted to improve the quality of both image and sound of the 16mm film and to solve the various problems connected with the exhibition of these films in halls not especially designed for sound film projection.

We all know that the theatrical motion picture industry for competitive reasons spends a large amount of time, money and research on improvements and perfections to maintain high technical standards. The world's most skilled technicians and craftsmen, the finest, most up-to-date equipment are employed for recording and processing standard-size motion picture film.

In the 16mm field the smaller image and sound track make it necessary to give even greater care to the production of equipment and the processing of film in order to secure comparable results. We are now at a stage where we are always conscious of our non-theatrical audience.

The National Film Board of Canada is producing films specially directed both technically and psychologically to community showings. We also rely on the co-operation and skill of Film Board projectionists who are trained to handle and service their machines to ensure the best possible reproduction.

Operators presenting programs all across the continent are learning to make use of the materials they find at hand to improve lighting and acoustics. Often they have to manipulate tone controls to adjust their projectors to difficult and trying auditorium conditions. It has been proved that with this extra understanding and effort 16mm programs can be as good technically as 35mm film shows in the average theatre.

The Technical Services Branch of the National Film Board, concerned with the improvement of 16mm films, is conscious of its responsibilities. New apparatus has been installed in the laboratory and fine-grain film stock is now used to obtain first-rate prints. Special recording methods are employed and great care is taken to allow for the inevitable wear and tear of present-day 16mm projectors and loudspeakers in circulation. The machines are constantly kept on the move, and spare parts as well as running repairs are continually required to keep our mobile projection squads at top efficiency. Prints for non-theatrical distribution are thoroughly tested and inspected before they are released to circuits and film libraries. We are co-operating with the rest of the film industry to help set up the highest international standards for 16mm film production.

The continued collaboration of producers, technicians and projectionists working on 16mm problems is steadily correcting visual and acoustic shortcomings, making it possible to bring information films to our audiences under the most favourable conditions.

VOLUME ONE FEBRUARY, 1944 NUMBER FOUR

National Film Board NEWS

Published by the National Film Board Distribution Department. All communications should be addressed to The Editor, National Film Board News, Bolton Street, Ottawa, Ontario.

VOL. 1 FEBRUARY, 1944 No. 4

FILMS and the NAVY

During his first weeks of training ashore, nearly thirty per cent of a naval rating's training time is spent seeing and interpreting films. The Royal Canadian Navy is fully aware of the importance of visual instruction to acquaint naval recruits with their new life and duties.

On his very first day in the Service, the young sailor sees an Admiralty production, MEET THE SHIP, an eight-reel feature explaining the type of vessel in which he is going to serve.

On the following day, a one-reel subject, BOATS WORK, demonstrates to him the function and servicing of lifeboats. Then follow other introductory films on life-saving, artificial respiration, first aid, and a number of subjects specially suited to the newcomer anxious to learn about and familiarize himself with his new surroundings. Each of these films is preceded by an explanatory talk from the instructor.

Visual instructors in the Navy have realised that training films are not automatic teachers taking the place of trained interpreters. First of all the training officer previews training films available to him. Longer films dealing with a series of subjects are broken up into one-reelers, and only the part specially referring to the item taught is being shown.

As a rule screenings do not exceed thirty minutes with films on not more than one subject shown in each half day of instruction.

Often a one-reel film is shown three times running: first without interruption so as to give a comprehensive picture of the subject; a second time with interruptions by the instructor to explain specific points; a third time to give the class a final chance to grasp all essentials.

A brief examination by way of review follows the visual demonstration. A Quiz Sheet is distributed to each member of the class to test the men's perception of what has just been shown.

Specially designed light-weight projection equipment is available for many ships, large and small, in fighting zones and foreign lands.

Movie entertainment of Naval personnel on board ship has not been neglected either. The Royal Canadian Naval Film Society, formed late in 1942, provides motion picture entertainment for the men of the R.C.N. on a co-operative basis, the sole shareholders of the Society being the officers and men of the Service.

The Royal Canadian Naval Film Society obtains a revenue from the showing of its programs in ships by making a charge of 25c per officer and 5c per man for each program supplied to the ship. While the films are on board, they are exhibited as many times as necessary to allow the whole ship's company to see them.

Although a few ships have their own projectors the great majority are supplied with one of the Society's machines when they become members. Projection equipment remains the property of the Society which is assisted in this by an initiation fee of $1.50 per man. This fee, of course, is not charged for ships which provide and service their own projectors.

The National Film Board of Canada and the film industry generally are co-operating with the Society by placing at its disposal short and feature-length films, in many cases before they are released in the regular theatres throughout Canada. Generous co-operation has also been extended to the Society by the United States Army Motion Picture Service while the U.S. Navy Bureau of Ships has rendered assistance by obtaining priorities for the manufacture of new projectors and other essential equipment.

The work of providing officers and men with entertainment in the evening has been, in many cases, combined with the exhibition of instructional films by day. Thus the film in its double function of supplying instruction as well as relaxation serves those who man Canada's ships and has by now become an essential element of their lives.

CURRENT RELEASES

The National Film Board of Canada announces the release of these subjects for general 16mm distribution throughout Canada. Application for the loan of prints should be made to our regional libraries established in thirty-one large centres from coast to coast. Enquiries about Projection Service can be made through these repositories or should be directed to the Distribution Department of the National Film Board of Canada, Ottawa.

THE WAR

MALTA G.C. (English, black-and-white, sound, 2 reels, 19 minutes running time) was produced for the British Ministry of Information and photographed by the Army Film Unit and R.A.F. Film Unit; Commentary spoken by Laurence Olivier. A chronicle of a day and a night on the much-bombed island fortress, MALTA G.C. is a record of the courage and undaunted spirit of its people during one of the island's many devastating bombing raids. We watch Wellingtons taking off by night to attack German raiders. Bombs are seen bursting over the white, blenched ruins with palls of smoke covering the island's skyline. The George Cross Medal is awarded to Malta in recognition of its endurance and fortitude under continuous, relentless air attack.

SOCIAL SERVICES

BEFORE THEY ARE SIX (English, black-and-white, sound, 2 reels, 16 minutes running time) is a film for working mothers. It tells the story of Canada's day nurseries where children can be looked after during their mother's absence at work in essential war factories. Twenty mothers working in war industries can form a group entitled to a day nursery for their district. For 35c a day a child can be fed, tended and its health and recreation supervised by a staff of trained nursery personnel. The mothers can do better work if they are relieved of all anxiety about their children's welfare and safety. Prints of BEFORE THEY ARE SIX are available also in the United States. For sales terms in the U.S. apply: MISS J. MARGARET CARTER, NATIONAL FILM BOARD OF CANADA, 84 EAST RANDOLPH STREET, CHICAGO (1), ILL.

INDUSTRY

LAKE CARRIER (English, black-and-white, 1 reel, sound, 9 minutes running time) is an Office of War Information release. Prints have been put at the disposal of the National Film Board of Canada by courtesy of the United States Government. LAKE CARRIER shows how the big steel cities of the Michigan and Erie districts of the United States have to be kept going at full speed. Their supplies of ore are brought down to the ports by long lake ore carriers from the open pit mines of the Iron Range in Northern Michigan. Commentary spoken by Frederic March.

POST-WAR WORLD

FILMS AND RADIO (English, black-and-white, 1/4 reel, sound) is a short trailer dealing with the use of film in connection with radio forums; this particular one was designed to stimulate group discussion in connection with post-war problems affecting the lives of Canadians in the years to come.

PREVIEW SERVICE

Originally established to provide films for preview purposes, the National Film Board 16mm Preview Service has recently extended its function.

The main object of this service is still to loan preview prints of our educational subjects to film libraries in Canada who are interested in buying prints.

However, we also have on hand single prints of films not otherwise available in this country which can be lent to libraries and organisations concerned in visual education. For such purposes, prints can be borrowed for special showings, but it is advisable that individual requests be addressed to regional libraries who will, in turn, apply to the Film Board for special subjects available through our Preview Service.

As the National Film Board of Canada is the Distribution centre of all British Ministry of Information non-theatrical releases in this country, we have, through our preview service, prints of their films which have not been generally released to regional libraries. Films such as DANGER AREA, portraying a dramatic incident in a British explosives plant, UP PERISCOPE, a picture of life in a submarine under combat conditions, and many other titles are available through this source. Recent productions of the British Ministry of Information include series of films on nutrition and rationing, health and medicine, farming and gardening. Descriptive material on these films may be obtained from the Distribution Department of the National Film Board, Ottawa, and prints can be borrowed with a view to purchase or for special showings.

In addition we have obtained through the courtesy of the United States Government a number of Office of War Information subjects as well as films on Latin-America specially produced for consumption in the United States and released through the Office of the Co-Ordinator of Inter-American Affairs. ARGENTINE PRIMER, MEXICO BUILDS A DEMOCRACY, A LINE FROM YUCATAN are just a few titles from a long list covering Central and South America. Although some of these films are not available for general distribution we are glad, whenever possible, to provide prints for special occasions. A number of these Latin-American subjects were loaned to the Film Board on an exchange basis for Canadian subjects.

Furthermore, our preview service includes a complete set of forty-eight U.S. Office of Education training films. These are specialised short subjects dealing with various technical aspects of machine shop practice. At the moment, French versions are being prepared for circulation in Quebec.

In view of the fact that we have only one print of every film in our preview service, bookings should be made as far in advance as possible. Titles available will be announced regularly in the National Film Board News.

FOR YOUR LIBRARY

THESE NEW SUBJECTS HAVE JUST BEEN COMPLETED

SKY SWEEP

1½ reels, 14 Minutes,
35mm and 16mm.
Black-and-white. Sound.

A lesson in aircraft recognition, SKY SWEEP is also the story of developments in aviation since 1934. It is a film produced by the National Film Board with an eye to the interest of Canadian boys. A flashback to the days of the Battle of Britain opens this film. The first fighter aircraft to be mentioned is the Spitfire, developed in 1934. Spitfires average 370 m.p.h. and have a range of up to 700 miles. Next comes the Hawker Hurricane, the "workhorse" plane as compared to the Spitfire greyhound. Mosquitoes, as yet the world's fastest craft, were the first to bomb Berlin by daylight.

Many other types of planes pass in review. New airfields have sprung up in Britain to accommodate the numerous United States airplanes now operating from British bases: Liberators, Lightnings, Thunderbolts. Of all U.S. types the Flying Fortress has the heaviest armour. Then there is the Lancaster, capable of carrying four-ton block-busters and possessing a 2,000 mile range. The biggest bomber of the lot, the Avro Lancaster, has four engines, a range of up to 2,400 miles and averages 300 m.p.h.

SKY SWEEP is suitable in particular to airforce cadets and its appeal lies in the fact that it tests the youngsters' powers of quick perception and memory. Useful for all aircraft recognition classes.

For loan and purchase terms in Canada apply Distribution Department, National Film Board of Canada, Ottawa.

RADIO FRONT LINE

2 Reels, 18 Minutes,
35mm and 16mm.
Black-and-white. Sound.

RADIO FRONT LINE tells of the importance of radio communication in war. It was sponsored by the Department of Munitions and Supply and produced by the National Film Board of Canada.

The film opens with a number of radio front line reports, the first one given by an eye-witness during an assault in the Pacific Northwest when radio equipment was dropped by parachute to a small group of infantry soldiers who had been cut off from their unit. Then follows an account of radio service set manufacture in Canada. Radio location and radar are shown in action, and there is a flash-back to 1899 when the first wireless S.O.S. message was sent across the ocean.

All three services now use radio communication to great advantage, and wireless transmission is no doubt the nerve centre of the present war strategy.

For loan and purchase terms in Canada apply Distribution Department, National Film Board of Canada, Ottawa.

"HANDS FOR THE HARVEST"

Labour Problems on the Farm

The National Film Board of Canada has just completed a new two-reel subject (22 minutes running time, 16mm, sound, black-and-white) specially designed for rural audiences. HANDS FOR THE HARVEST was made with the sponsorship of National Selective Service and deals with farm management under present-day conditions.

Half a million people have left Canadian farms since the outbreak of war to join the forces. Beef, bacon, dairy products — essentials to feed our soldiers at home and abroad, our Allies overseas, and our own people, must be produced in larger quantities than ever before. Stocks must be laid in for the immediate post-war future, when, under the United Nations Relief and Rehabilitation Administration scheme, millions in liberated Europe will have to depend on Canadian livestock and cereals for their survival.

Emergency farm help is needed in British Columbia's fruit farms and dairy ranches. The mixed farms of the Prairie regions with their livestock and coarse grain produce need hands for the harvest; the farms of Ontario and Quebec with their intensive programs, the Maritime provinces and their poultry farming—all these vast regions require new sources of labour.

As a result, Provincial Selective Service Departments are calling upon youngsters to lend a hand. High school boys and girls, housed in well-equipped camps, are helping farmers these days, and after a few days of training these young people adjust themselves to this new life and get to work with surprising speed and ability. In other cases farm labour is organised in mobile squads, small groups of farm hands who are directed to areas where seasonal help is most needed. Yet another source of additional farm labour are office workers and government employees in local regions who welcome an opportunity of spending a week-end or a short holiday on nearby farms. Soldiers, too, assist occasionally, and Prisoners of War, internees, conscientious objectors, Canadian born Japanese and other groups help to swell Canada's agricultural army.

HANDS FOR THE HARVEST is scheduled for rural distribution in March 1944. A few weeks later, prints will be available for general distribution.

THE NEXT
WORLD IN ACTION
AND
CANADA CARRIES ON
RELEASES COMING SHORTLY TO YOUR THEATRE!
Battle of Europe
(WORLD IN ACTION)
Look to the North
(CANADA CARRIES ON)

All items appearing in the NATIONAL FILM BOARD NEWS can be reproduced with or without credit depending upon the type of publication used.

EDUCATIONAL FILMS

FILMS FOR FOREIGN LANGUAGE TEACHERS

Public and private schools across Canada all report increased enrollments in classes studying the languages of our neighbours in Central and South America. To the foreign language teacher, faced with instructing in Spanish or Portuguese, has come the aid of the sound motion picture.

By using motion pictures with Spanish or Portuguese commentary, the teacher can make pupils fully acquainted with the sound of the language that is being studied. Learning is also aided by seeing on the screen the various objects described.

Films available from the National Film Board of Canada can bring to the classroom information about familiar Canadian scenes described in Spanish or Portuguese such as HOT ICE, a black-and-white two-reeler on Canada's national sport, ice-hockey; BANFF-JASPER HIGHWAY is available in Spanish, and WINGS OF A CONTINENT, a two-reeler on the work of the Trans-Canada Airlines, can be obtained both in Spanish and Portuguese.

NORTHLAND, dealing with Canada's Northern mining camps and INSIDE FIGHTING CANADA, a film on our war effort at home are also available in these two languages. MAPLE SUGAR is yet another in this series of which a Spanish version can be obtained.

For the French language teacher there is a host of subjects available; in the National Film Board French Supplementary Catalogue "NOUVEAUX FILMS" are listed films dealing with life in the Province of Quebec, such as TERRE DE NOS AIEUX, LE PAYS DE QUEBEC, and many other 16mm subjects on various parts of Canada.

Spanish and Portuguese versions can be previewed and purchased from the National Film Board Distribution Department. French subjects are available through a number of regional libraries in French-speaking communities.

WORTH HAVING—

FILMS OF BRITAIN AT WAR

British Information Services, New York, have just published a 24-page illustrated booklet entitled FILMS ON BRITAIN AT WAR. The Distribution Department of the National Film Board of Canada has a limited number of copies available, and applications should be addressed to us.

Apart from giving details of many films picturing Britain in terms of documentary production from the dark days of autumn 1940 to the present time, the booklet contains notes on how British Government films serve the war effort of the Unted Nations.

FILMS OF BRITAIN AT WAR also gives a list of those films which have been released in motion picture theatres throughout the United States.

The pamphlet is intended to show how the screen has been used to keep the people of Britain informed on all aspects of the war and thus enable their contributions to have greated efficacy and meaning.

MORE LEARNING IN LESS TIME

A limited number of copies of a pamphlet entitled MORE LEARNING IN LESS TIME are available from the Distribution Department of the National Film Board, Ottawa.

This training aids manual was issued recently by the Bureau of Naval Personnel Training Division, Training Aids Section, of the United States Navy. In twenty-four terse illustrated pages techniques of using all kinds of visual aids in training are described. This is done in such a way that the publication should be of value to teachers and others who utilize films, film strips, charts, pictures and models in their work.

Copies will be mailed to Film Librarians and Directors of Visual Instruction in Canada on request, as long as the supply lasts.

CALLING ALL PROJECTORS

You have read about the volunteer projection service established in many large centres. Now we need your help in extending this service. We are all interested in broadening the use of films in the field of information and citizenship, and projector owners can play an increasingly large part in this development.

One 16mm sound projector is sufficient to establish a film service. If your machine is not at present being used to its fullest extent, give this suggestion your consideration; write to us, and we shall be glad to communicate with local groups who might sponsor this project. We, of course, shall be glad to help in every way by making films easily available and by providing catalogues and any possible other reading material.

Projectors loaned for this work are fully insured during use. Owners need not worry on that score. Also spare parts will be supplied as quickly as possible, whenever needed.

CONVENTION FILM SERVICE

Convention Film Service is available from coast to coast. Recognizing the value of film audiences that represent so broad a cross section of Canadian opinion, the National Film Board of Canada has made available, through its Convention Film Service, in addition to films already in circulation, the opportunity of previewing new films before they are generally released. This service is provided only for convention and conference audiences.

The National Film Board of Canada is indebted to members of Kiwanis International and the Junior Boards of Trade who undertake to provide projection service for evening showings of films of national purpose. This Volunteer Projection Service is available in 31 cities from Victoria, B.C. to Halifax. For daytime showings the National Film Board will make arrangements for projection service through regional representatives and the film libraries. For further information, catalogues and bookings of new films for preview apply to:

Convention Film Service,
Distribution Department,
National Film Board of Canada,
Ottawa, Ont.

"WHEN DO WE EAT?"

A New Production in the "KNIFE AND FORK SERIES"

2 Reels, 21 Minutes.
35 mm and 16mm.
Black-and-white. Sound.

War workers must eat their meals at varied hours and under difficult conditions. Industrial accidents can be prevented and the sick rate reduced if workers eat the proper types of food to maintain maximum strength and energy.

Nowadays, workers are employed up to their maximum capacity—sometimes on a twelve-hour day, seven days a week, with a lot of strenuous night-work involved. Changing shifts result in broken sleep, and there are many other factors designed to reduce working capacity.

To make up for this, the war worker needs good and well-balanced meals. He, like the soldier, is as fit as his food makes him. Factory managers and personnel supervisors are urged to improved the eating facilities of their employees and, wherever possible, to provide well-run canteens.

The average industrial worker's food program for the week should include at least ½ pint of milk a day and some cheese; a serving of meat or fish once a day, liver once a week, one to two helpings of fresh vegetables a day, raw vegetables or fruit. Three or four eggs should be eaten per week, with cereals and wholegrain bread to round up the week's diet.

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All items contained in this publication refer to Canadian 16 mm distribution only unless otherwise specifically stated.

National Film Board NEWS

PUBLISHED BY THE DISTRIBUTION DEPARTMENT OF THE NATIONAL FILM BOARD OF CANADA
OTTAWA, CANADA

SCIENCE AND FILMS

The English Scientific Film Association was formed in May, 1943 at a meeting representative of science and films, convened by the Scientific Films Committee of the Association of Scientific Workers, a body affiliated to the British Trades Union Congress.

It is interesting to note the aims of the E. S. F. A. because they present a true integration of science and visual instruction. Together with the equivalent Scottish Association, the English Scientific Film Association plans:

> to promote the national and international use of the Scientific Film in order to achieve the widest possible understanding and appreciation of scientific methods and outlook, especially in relation to social progress;
>
> to collect and collate and distribute information on the Scientific Film;
>
> to publish comprehensive lists of Scientific Films graded according to scientific merit;
>
> to establish relations with Government departments, public bodies and other organisations which are in a position to make, use or circulate scientific films;
>
> to support and consult a representative panel of scientists to advise producers of films of all types in scientific matters, and to maintain close contact with the film industry.

The E. S. F. A. works in close-co operation with The London Scientific Society.

THE LONDON SCIENTIFIC FILM SOCIETY

The Society's efforts during its six years of existence have been directed toward obtaining films not normally available to the public. Late in 1943 two films were shown dealing with the work of the Pavlov Institute for Medical Research in Moscow. There was also shown the first of a series of "research films". It was described in an introductory talk by the producer, and illustrated the use of the cine camera in research—in this case to produce a slow motion colour study of stresses set up in a transparent plastic model section of a railway line. Yet another film shown by the Society was NEURO-PSYCHIATRY, a film recently completed by the British Ministry of Information on the treatment of war-time neuroses made for American medical audiences. Response to the Society's announcements reflects an immense interest in the scientific film.

THE BOSTON SCIENTIFIC FILM SOCIETY

During the past four years, the Boston Scientific Film Society has drawn considerable audiences. It recently opened its fourth season with a session held in the auditorium of the Fogg Museum of Art in Boston. At each meeting, from five to eight different subjects are screened.

The Society intends to show films on scientific progress by presenting to the public 16mm motion pictures dealing with research, industrial problems and education.

SCIENCE FILMS FOR CANADA

The National Film Board Preview Service has been established to provide selected films from all sources for special screenings. On page three of this news bulletin we are giving a short list of important 16mm films produced in Britain and dealing with health problems in wartime.

Plans are underway to establish, with the co-operation of Canadian University Extension Divisions, scientific organisations and other interested groups, a scientific film library containing sound pictures on biological, medical, scientific, zoological, botanical and similar subjects. As yet, developments are still in their infancy. However, concrete plans are shaping to follow the lead given by Britain and the U.S. to fulfil a nation-wide need for scientific instruction by means of motion pictures.

By contacting professional groups who are anxious to use special motion pictures for study and information purposes, we hope to establish centres of interest which could develop the idea of the British and United States scientific film societies in this country.

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FILMS and PUBLIC LIBRARIES

Canadian Public Libraries are finding a forceful associate in the motion picture. Book and film libraries are essentially related, both operating to further the dissemination of information and cultural pleasure to the people of the Dominion. Because films can establish a vivid background for the pursuit of further knowledge, because the medium can act as a healthy stimulus to greater reading, librarians are organising to co-ordinate the work of films and books.

Eager to assist in the development of this project, the National Film Board has placed its services at the disposal of public libraries by supplying them with the type of film best suited for the purpose.

The idea of conducting Film Forums in connection with library activities, although not a new one, has so far found only few practical applications. Knowing the value of films as a stimulant for discussion, the National Film Board took up the idea of Film Forums—general discussion periods following the actual presentation of the film. Today, these Film Forums have become an important feature on the National Film Board's Rural Circuits programs. Of interest to libraries will be the booklet entitled "A Guide to Film Forums", containing suggestions for starting forums in a community. The booklet may be obtained by writing to the National Film Board Distribution Department in Ottawa.

To act as introduction to these Film Forums, the National Film Board of Canada has produced a series of "Discussion Trailers". A film is taken which is particularly suited to argument. A panel is then chosen and a film is shot showing this group talking over some of the issues raised in the film. These trailers shown at the end of the program give the audience a basis for starting a discussion.

In Windsor, Ontario, the Library Board has established a film and record service and has completed arrangements for sponsoring a one hour film forum or music program each week during the winter months. In this field the London Public Library in Ontario is also doing excellent work being the first in Canada to distribute films in much the same manner as it has been servicing the public with books.

In Manitoba, the Winnipeg Public Library, in co-operation with the Board's film repository at the University of Manitoba, has proposed to have library representatives present at the film showings for private groups, to address them briefly concerning the books available on the immediate subject treated in the pictures. Supplementary reading lists would be distributed to all persons present at these showings. Some of these suggestions have already been put into practice.

Mr. H. H. Easton, Assistant Librarian, Winnipeg Public Library, writes to us in this connection:

> "It may be suspected that some public libraries approach the problem of cooperation with the work of the National Film Board with ulterior motives — I confess that this was the case with the Winnipeg Public Library. Motion picture shows and film forums may be a means of attracting people to the library, with the hope that they will find their way back.
>
> "There is some ground for this hope, but the library which sponsors an active film program soon finds that it is giving a valuable service to its patrons.
>
> "Most public libraries on this continent, if they trace their history back to the beginning, will find that they sprang from the need for adult education. For this purpose they used the obvious materials — books and pamphlets — and occasionally sponsored lectures and study courses.
>
> "The Winnipeg Public Library began a monthly film forum in October, 1943, in cooperation with the Film Library of the Adult Education Office, University of Manitoba. When the CBC's "Of Things to Come" series began in December the topics of the film forum were correlated with the radio broadcasts.
>
> "From the public library's point of view, the Film Forum project has been an outstanding success, and we hope that it has been equally successful from the point of view of the other partners in the enterprise — the Film Library and the representative of the Canadian Association for Adult Education in charge of Citizens' Forum.
>
> "At the present time, the library is considering other ways in which films might be used in its educational programs."

CURRENT RELEASES

The National Film Board of Canada announces the release of these subjects for general 16mm distribution throughout Canada. Application for the loan of prints should be made to our regional libraries established in thirty-one large centres from coast to coast. Enquiries about Projection Service can be made through these repositories or should be directed to the Distribution Department of the National Film Board of Canada, Ottawa.

CORVETTE PORT ARTHUR (English, black-and-white, sound, 2 reels, 22 minutes running time) is a film tribute to the Royal Canadian Navy. The stars are the men who sail the fighting ship Port Arthur, credited shortly after the picture was completed, with sinking an Italian submarine in the Mediterranean. There are scenes at an Eastern Canadian port of a "Convoy Conference", when masters of ships to sail in a convoy are given their sailing orders in a closely guarded room. The film reaches a climax when a sub is detected approaching the convoy and signal for "Action Stations" is sounded throughout the ship.

PROUDLY SHE MARCHES (English, black-and-white, sound, 2 reels, 18 minutes running time). More than 30,000 Canadian women have already joined the Women's Royal Canadian Naval Service, the Canadian Women's Army Corps and the Royal Canadian Air Force. This film covers the services in a fast-paced dramatic story. In the concluding scenes of the film the commentator states: "Today, with victory for the United Nations almost within sight, with the great upsurge of confidence as our armed forces strike with deadly effect at the crumbling Nazi wall encircling Europe, our women are marching shoulder-to-shoulder with their brothers-in-arms."

LABOUR FRONT (English and French, black-and-white, sound, 2 reels, 21 minutes running time). In this film, the story is dramatically told of the mobilisation of the United Nations manpower. Thousands of man-hours have built great stockpiles of new machines that are pouring into battle. The workers on the United Nations' production lines have given magnificent proof of the ability of free men to produce the tremendous volume of materials for the Allied war machine. And, as the commentary emphasizes, "when victory comes, then millions upon millions will seek, and will expect to find, the opportunities of peace".

TRAIN BUSTERS. (French, black-and-white, sound, 1 reel, 14 minutes running time) is a tribute to the daring and skill of the airmen of the R. C. A. F. in carrying out their task of disrupting enemy communications and transportation. However, apart from portraying the excitement and tension preceding their work, the film explains in a global manner the Allied air strategy of hitting the nerve centres of the German war machine. TRAIN BUSTERS is a dramatic, fast-moving presentation of material furnishing a background for the study of global air strategy and of modern war aviation in relation to transport and supply lines.— English prints will be available in the near future.

Please refer all United States enquiries to: MISS J. MARGARET CARTER, National Film Board of Canada, 84 East Randolph Street, Chicago (1), Ill.

PREVIEW SERVICE

HEALTH IN WARTIME

To date there has been a lack in Canada of motion pictures on specialised medical subjects as well as films dealing with health and hygiene. The National Film Board Preview Service has a number of 16mm sound motion pictures at hand produced specially with a view to nation-wide circulation by the British Ministry of Information. They deal in most cases with health and medical problems arising out of wartime conditions in Britain, but they are also of permanent value in that they treat questions of hygiene, industrial health, rehabilitation and other important aspects of welfare.

These films, due to their special nature, are not generally available in educational libraries, but it is hoped that all those interested in acquiring prints will apply to the Preview Service of the Film Board for preview prints with a view to purchase.

Meanwhile, to satisfy immediate demands, we have a single preview print of each of these medical and health subjects for professional groups and others in the field who are anxious to screen such films.

Applications should be made as far in advance as possible.

Here are a number of selected titles:—

DEFEAT TUBERCULOSIS: 1 reel, 10 minutes. Tells the story of T. B. cure from Koch's experiments to present-day British methods of national prevention and treatment of the disease.

HEALTH IN WAR: 1 reel, 14 minutes. Shows the shift from peacetime to wartime organisation in hospital, medical and general public health services.

LIFE BEGINS AGAIN: 2 reels, 21 minutes. An account of new methods of rehabilitation for men injured in industry or in the Forces.

LIFTING: 1 reel, 7 minutes. Produced for the British Department of Labour, this film explains proper methods of lifting heavy loads.

MEN IN DANGER: 2 reels, 19 minutes. This is a film on the worker's health and safety. It deals with serious types of industrial accidents and some of the major occupational diseases.

NEURO-PSYCHIATRY: 7 reels, 70 minutes. Detailed treatment of work in a rehabilitation hospital for nervous war cases. This film is specially suitable for army audiences, medical and civic authorities and welfare groups.

NO ACCIDENTS: 1 reel, 10 minutes. A recent film emphasizing the importance of routine observance of safety precaution in factories. Some specific suggestions are made as to dress and work habits.

SCABIES: 4 reels, 37 minutes. An illustrated study of the disease popularly known as "The Itch", showing how it is caused by a minute creature which burrows under the skin. Made for wartime use in Britain.

SUBJECT FOR DISCUSSION: 2 reels, 19 minutes. Treats the important medical points, symptoms, cure and consequences of V. D. The main value of the film lies in the fact that audiences are being shown that, when necessary, syphilis and gonorrhoea can be discussed between people as casually as meningitis or small pox.

FOR YOUR LIBRARY

THESE NEW SUBJECTS HAVE JUST BEEN COMPLETED

16mm black-and-white preview prints will be available in the near future.

AGRICULTURAL SHORTS

MORE PIGS (English, black-and-white, sound, ½ reel, 5 minutes running time). Using the animated lantern slide method, MORE PIGS is a humorous lesson in the proper care and breeding of hogs. This little film deals with scientific feeding methods and nutrition as well as the proper care of the pregnant sow and her litter. The best ways of housing pigs are demonstrated, and there are a number of useful hints to the farmer and hog breeder for obtaining best bacon results. MORE PIGS provides fun and knowledge not only for farmers but also for anyone else who might see it. A cartoon of the DO IT NOW SERIES, MORE PIGS was produced by the National Film Board of Canada for non-theatrical distribution to rural audiences.

GRIM PASTURES (English, black-and-white, sound, ¼ reel, 3 minutes running time). A rural trailer depicting in a humorous manner the farm animals' need for proper fodder, GRIM PASTURES shows a horse and a cow both racing for the same bit of grass—the distracted beasts end up by carrying sandwich boards with slogans imploring farmers to raise more fodder. A National Film Board production for non-theatrical audiences.

CANADA REMEMBERS

1 reel. 10 Minutes;
16mm only.
Kodachrome. Sound.

CANADA REMEMBERS traces the history of the "Book of Remembrance" containing the names of all Canadians who fell in the last World War. Work on this National Shrine was begun in 1932. Over 60,000 names are inscribed by hand, and artists have embellished and illuminated each page of the book with original designs.

The binding was done with infinite care, the cover bearing lettering in fine gold. Photostat copies of the book are deposited in all Provincial capitals enabling people to seek out names of relatives and friends.

CANADA REMEMBERS should be of interest to the Canadian Legion and similar patriotic and veterans' organisations. The original Carillon music from the Ottawa Peace Tower lends added interest and makes this subject suitable for schoolchildren, many of whom have never heard the Carillon music.

A National Film Board film photographed in Kodachrome, CANADA REMEMBERS is scheduled for non-theatrical distribution. It is hoped that a few colour prints will be made available. General distribution: black-and-white.

LISTEN, SOLDIER

2 reels. 21 Minutes
16mm only.
Black-and-white. Sound.
Distribution: Army only.

LISTEN, SOLDIER is concerned with some of the most frequent infringements of military discipline. The opening scenes show an officer explaining that nearly all offences committed by soldiers are covered either by the King's Regulations and Orders or the Manual of Military Law. The film helps to explain why many offences committed by enlisted men appear much more severe when he is in the Army than if he had committed them in civil life.

LISTEN, SOLDIER gives a number of practical examples: One man, for instance, refuses to undergo certain physical training which he considers dangerous. The second man, while at a routine job, deserts his post, yet another steals property belonging to one of his comrades, still another leaves his rifle unattended and loses it.

The next part of the film is an episode of a young soldier getting drunk and being unfit to fulfil his task the next day. A.W.O.L. offences, of course, are very frequent and often result in leave being cancelled for the whole group.

The last part of the film describes a number of trials. The first soldier who disobeyed orders to undergo training is remanded for District Court Martial. The A.W.O.L. case gets 28 days detention and forfeits his pay. Furthermore he has to pay $25.50 cost of the escort who had to bring him back to camp.

The moral of the film is the necessity for each soldier to realise the amount of community responsibility and discipline required from him.

LISTEN, SOLDIER was produced by the National Film Board of Canada for the Department of National Defence—Army.

THE NEXT
WORLD IN ACTION
AND
CANADA CARRIES ON
RELEASES COMING SHORTLY TO
YOUR THEATRE!

Battle of Europe
(WORLD IN ACTION)

UNRRA
in the Wake of the Armies
(CANADA CARRIES ON)

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SASKATCHEWAN REPORTS...

The Young Men's Division, Regina Board of Trade, now have a panel of qualified operators sufficient for the present to meet the steadily increasing rate of film bookings. They have contracted for weekly screenings for an indefinite period with one group, and others are developing; so much so in fact that with only two machines regularly at their disposal, they may soon find it necessary to suggest other dates for requests received as double bookings are becoming frequent.

The past and present step-up is to an extent the result of the Board's educational drive on Veneral Diseases and of requests through the Canadian Legion War Services Inc., to arrange showings of army films for military personnel; these have been welcomed as a means of providing experience for their projectionists. They can definitely state, though, that this favourable publicity is enthusing others and feel sure that the regular library provided by the National Film Board is more and more coming into its own.

Saskatchewan has very little industrial development and hence their field is practically dependent upon Service and Educational bodies. They intend to continue to stimulate this interest to the best of their ability, taking into account the limited amount of equipment at their disposal and the fact that voluntary time in these busy days is not so free as in normal years.

The Young Men's Division of the Regina Board of Trade have a very active group of approximately twenty sincere and ambitious young men and have canvassed and supplied with the list of films available all known clubs, associations, etc., in the city to make full use of their services. The newspapers and educational authorities have assisted materially and they expect to report continued and growing interest in this work as time goes on.

TRAINING VOLUNTEER WOMEN PROJECTIONISTS

At the time of the last Victory Loan considerable difficulty was experienced in Regina in obtaining suficient projectionists. The suggestion was made to ask each volunteer when registering at the Womens' Voluntary Service Centre if she were interested in learning this work.

The response was good and out of a group which showed interest seventeen young women carried the course to its completion. This was achieved through the kind co-operation and help of Mr. E. F. Holliday, of the Canadian Legion Educational Services. Classes were held weekly.

The group was greatly interested. Classes were conducted informally with Mr. Holliday instructing, and the girls could ask questions at any time. Each girl had considerable practice on the machine and gained a good working knowledge of it; several became very proficient.

With the Sixth Victory Loan about to be launched, the Regina Women Volunteer Projectionists are pleased to have such a group of capable operators prepared to lend assistance.

TAKE CARE OF YOUR PROJECTOR

The Industrial Division of the National Film Board have made it a practice to hold periodic conferences with their projectionists for the purpose of reviewing their work in the field as well as planning for the future.

One of the main items on the agenda was the care and maintenance of projection equipment. Representatives and Repair Supervisors of the manufacturing company were present so as to explain and demonstrate mechanical and maintenance details. This included proper lubrication methods, care of photo-electric cells and other points of keeping machines in top condition.

Prints are returned to the National Film Board library in bad condition.

Please use the carbon-tetrachloride in your possession more often to clean your projector. This will obviate a too frequent use of the chemical on the film. Carbon-tetrachloride should not be applied to the films more than once a month.

"PARTNERS IN PRODUCTION"

PARTNERS IN PRODUCTION tells the story of Labour-Management Committees in war-time Britain.

This is the first of a series of four or five films to be produced by the National Film Board of Canada dealing with Labour-Management Committees in their various aspects and functions.

Workers' representatives of Labour-Management Committees are democratically elected. A typical election in a factory is shown, and the machinery by which Labour-Management Committees can refer questions to the Regional Boards of the Ministry of Production, which in turn can take them to the National Production Advisory Council.

Coal is the foundation of British Industry, and a committee in a colliery is taken as an example of a Labour-Management Committee in operation. The committee discusses a problem of adjustment caused by unavoidable closing of a coal face, which will throw about a hundred men out of work. The problem is considered by the committee in consultation with the Regional Controller of the Ministry of Fuel and Power; it is discussed by the miners at a Trade Union Branch Meeting, and a solution is found acceptable both to miners and the colliery management.

Finally the film briefly reviews some of the different kinds of Labour-Management Committees in existence, and the methods they use to ensure that workers and management really become partners in production.

PARTNERS IN PRODUCTION is an industrial subject of interest to anyone concerned with industrial relations.

It was photographed by the National Film Board in Britain in 1943 and edited in Canada early in 1944.

16mm prints will be available from regional libraries on April 1, 1944.

FRENCH IN FOUR EASY LESSONS

The French Unit of the National Film Board of Canada has produced two one-reel black-and-white 16mm shorts each containing two popular French songs.

Chants Populaires No. 2

The first of the two songs, "Envoyons d' l'avant nos gens" is a French-Canadian lumberjack's song. It is accompanied by puppet faces moving across the screen in the rhythm of the music.

The second song is the 16th century favourite "Auprès de ma blonde". Little tableaux in the gracious manner of 16th century France accompany this old-time, ever young ditty.

Chants Populaires No. 3

The first of the two songs in this reel, "La-bàs sur ces montagnes" is a French-Canadian song. It is accompanied by a number of tableaux first shown at a distance and then in close-up.

The second song is another French-Canadian favourite, "Trois canards".

Both songs are sung by the Alouette Quartet.

These little films are suitable for French-Canadian audiences of all ages and for language classes. Preview prints can be obtained from the Preview Service, National Film Board of Canada, Distribution Department, Ottawa, Ontario.

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All items contained in this publication refer to Canadian 16 mm distribution only unless otherwise specifically stated.

National Film Board NEWS

MISS MARY V.ROBINSON,
WOMEN'S BUREAU U.S.DEPT.OF LABOR,
ROOM 1316, 14TH CONSTITUTION AV.N.W.,
WASHINGTON,D.C.
U.S.A.
-FLM-

PUBLISHED BY THE NATIONAL FILM BOARD OF CANADA, OTTAWA

THE N.F.B. FARM WORK SERIES

To fit the special program of the National Film Board farm circuits a series of short instructional films was produced during the winter of 1943. These films range in length from three to five minutes running time and cover subjects dealing with farm equipment, maintenance and construction, farm livestock feeding and farm home management.

The films are available to agricultural field workers on sale from the National Film Board in Ottawa and have proved effective in many parts of Canada as background material and as a stimulus to action on the part of Agricultural Representatives and County Federation administrators. The films have made the rounds on the National Film Board Rural Circuits and have had appreciation particularly from agricultural lecturers who are anxious to make use of them.

The FARM WORK SERIES at this moment consists of five short films in black-and-white; the titles are given below, and further information may be secured from the National Film Board in Ottawa:—

The first, entitled WINTER CARE OF DAIRY CATTLE, is two minutes long and contains "in-the-barn" material that can serve as a starting point on the subject of dairy cattle care. It covers steps to be taken in the application of proper milking and feeding methods and stresses the importance of cleanliness in maintaining dairy cattle at top capacity and fitness.

STOOK SWEEPS AND BUCK RAKES, a four-minute subject, shows a power rake in action to demonstrate the effectiveness and workability of this modern farm device. Then a closer inspection is made of the various parts of the rake and of their construction. The film's purpose is to show how skilful improvisation can be used to harness more power on the farm.

The third subject in the FARM WORK SERIES, HOW TO BUILD A HOG SELF FEEDER, the most detailed of the lot, runs five minutes. Starting right at the beginning, a farmer demonstrates the assembling of a self feeder from plans and instructions supplied in leaflets published by the Department of Agriculture. The film clearly explains some of the construction details and gives the necessary guidance for making this profitable piece of farm equipment.

Fourth in the series is THE EXTRA KICK THAT BRINGS THE CHICK, a two-and-a-half minute short on the importance of Riboflavin in the poultry diet. This valuable addition means extra chicks by increasing hatching capacity. How Riboflavin can be secured in the foods fed to poultry is demonstrated in this film.

SCHOOL LUNCHES, last in the series, is a three-minute subject illustrating the difference at school lunch time between the hot nourishing meal and the skimpy sandwich lunch. The film was taken in a rural schoolhouse.

The FARM WORK SERIES films are intended for use on either sound or silent film projectors and may be ordered with a sound track or without. Additional subjects are being made as requests come in from agricultural field workers.

Apart from these short subjects which are available on a sales basis only, the National Film Board of Canada has produced a number of films of interest to farmers showing them how farm people live in other parts of the Dominion; there are films, too, about farming in wartime Britain and about the farmer's place in war food production. Film libraries where these subjects can be borrowed are located across Canada. A leaflet giving a complete list of films for farmers as well as all information required to obtain them for special showings can be secured from the Distribution Department of the National Film Board in Ottawa.

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National Film Board NEWS

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VOL. 1 MAY, 1944 No. 7

NEW N.F.B. INSTRUCTIONALS

A wide range of war and civilian activities is covered in a number of forthcoming productions made under the auspices of the National Film Board Rural Film Program. Three of these new subjects have just been completed and will be ready for distribution in 16mm for the September Rural Circuits programs. Apart from bringing information to rural audiences throughout Canada, the first two of these films are also designed for use in Intermediate and Senior Schools while the third has a more general appeal and is suitable for Junior as well as High School children and for general library circulation. Each of these films is photographed in black-and-white, and their proposed length is one and a half reel.

Their purpose is to promote understanding of the Canadian Northwest situation that has developed since 1940 and to show the importance of this region to the future of Canada.

HIGHWAYS NORTH — temporary title — describes how the war with Japan has focussed interest on the Pacific Northwest Territory. The threat of attack through this unknown and unpopulated area brought about a great upsurge in offensive construction and transportation through the region. First of the great highways into the North was the Alaska Highway, following the Canadian airfields on the Northwest Staging Route from Edmonton to the Yukon. The second great transportation development was the Canol project, developed so that Canadian oil from the Norman Wells on the Mackenzie River could be used in the Alaskan theatre of war. A whole new system of road, river and air routes was built to expand the Norman Oilfield and to bring the crude oil towards Alaska and the Pacific coast. These big projects in Northern Canada have opened up much new territory for exploration and possible settlement.

LAND FOR PIONEERS — working title — opens with a reference to the fact that the Canadian North is generally regarded as an empty, cold, unproductive land. The first explorers and fur traders penetrated its distances from the seacoasts, the Artic Ocean and Hudson Bay. But in the huge Northern spaces, men have found at widely scattered points mineral deposits of great wealth; first there was the Gold Rush boom of the Yukon and Klondike, after 1898. Later came the discoveries in the Canadian shield, the work of the Geological Survey, and profitable mining operations far in the Northwest Territories, at Great Slave and Great Bear Lakes. But mining is not the only promise of the North. There are abundant fisheries, forests, and even tracts of potential farmland. Wartime developments in the Northwest have brought these prospects to our attention.

NORTHWEST BY AIR, last of this series, points towards the difficulties of transportation in the Northwest area; air transport, therefore, is the best single method of covering distances and by-passing inaccessible country. Planning, building and operation of the Northwest Staging Route for aircraft by the Canadian Transport Department are shown as well as different means of freighting supplies used during the building of airfields such as tractor trains, river steamers, long portages. The Canadian Northwest Route to Alaska is now in use for war needs but offers a great passenger and trade route for the future.

CLASSROOM SUBJECTS

In the strictly educational field a series of six short films is in preparation dealing with basic Canadian activities and industries such as COAL and SALT MINING, LEAD MINING as well as films on WHEAT PRODUCTION, SHEEP BREEDING and the SPRUCE INDUSTRY.

For use in Latin-American countries as well as for language classes, a number of Spanish and Portuguese versions are being made of such subjects as QUEBEC, a film dealing with the life, customs and handicrafts of Quebec's French Canadians. Two further films are now in production in Portuguese: GREAT LAKES, dealing with the great industries along the shores of the Lake country, and NIAGARA, describing agriculture and industry in this busy region.

CURRENT RELEASES

The National Film Board of Canada announces the release of these subjects for general 16mm distribution throughout Canada. Application for the loan of prints should be made to our regional libraries established in twenty-six centres from coast to coast. Enquiries about Projection Service can be made through these repositories.

WAR BIRDS (English and French, black-and-white, sound, 2 reels, 15 minutes). One of the truly unsung heroes of this war is the homing pigeon, yet the R. C. A. F. has announced that of all the locations and rescues in this war up to the summer of 1943, 14 per cent was credited to the use of pigeons. The airmen have supreme confidence in their pigeons. How these vital birds carry out their duty is shown in detail in the National Film Board release WAR BIRDS, a film of the "World In Action" series.

HANDLE WITH CARE Produced for the Department of Munitions & Supply (English, black-and-white, sound, 2 reels, 18 minutes). Life in an explosives factory. The film explains graphically the nature and chemical composition of T N T by means of a series of animated diagrams. Workers have to take special precautions in view of the dangerous nature of their work. All matches, tobacco, cigarettes, etc. have to be left behind by the workers before entering the grounds. Work proceeds with deliberate slowness as any hasty move may cause untold damage and cost hundreds of lives of fellow-workers. **Distributed in the United States by the Office of War Information repositories.**

A MAN AND HIS JOB (English, black-and-white, sound, 2 reels, 17 minutes). The picture begins with the principal character being laid off, without advance notice, at the depth of the depression. Then follows a job-hunting sequence, wherein he is beaten down economically and crushed psychologically. The picture attempts to point up the inefficiency and hit-and-miss nature of the past, when there was no centralised system of correlating available manpower and jobs. This is contrasted with conditions in 1943 when such a centralised national system existed. The main character goes through Selective Service (after being temporarily laid off) and draws unemployment insurance benefits until he is re-employed. The second principal figure in the film, purposely created as a "Devil's Advocate" to bring up possible objections to the Unemployment Insurance Act, is shown getting re-employment through Selective Service both quickly and efficiently. The film ends on the note that for the first time Canadian workers are part of a national scheme of manpower planning and security.

COAL FACE (English, black-and-white, sound, 3 reels, 20 minutes). One of the "Canada Carries On" series. A young man discharged from the army returns to a coal town. As he wanders about, he sees life much the same as he left it. He takes a room with a miner who had known his father and recalls the tragedy of his death in the mines. As he attends a union meeting he hears the men speak of their relation to the war effort and, realising the importance of coal to victory, he joins a night shift and goes to work in the mine.

Please refer all United States enquiries to: National Film Board of Canada,
84 East Randolph Street, Chicago (1), Ill.

PREVIEW SERVICE

INDUSTRIAL MORALE

The Industrial Services Division of the United States War Department has produced a number of official films available for showings to those engaged in war industry. Their purpose is to give the men and women in American war plants authentic reports on the actual air, sea, and land battles of the war. The National Film Board Preview Service has a number of 16mm sound prints on hand for preview purposes. Will those interested in obtaining these films for special showings in Canadian war plants apply to the Preview Service of the National Film Board of Canada, Ottawa.

Here are a number of selected titles:—

THEY DELIVER THE GOODS: 2 reels, 20 minutes. How U. S. fighting equipment gets through to the fighting men in quantity and on time. The never-ending battle of supply is told, from the loading at ports of embarkation through jungle swamps to advance bases and, ultimately to the firing lines.

FILM COMMUNIQUE No. 2: 2 reels, 20 minutes. In two parts — the first, "A Day With the A-36's", the new attack bomber adapted from the P-51 Mustang. In addition, the film has scenes of the ground life of the men who service and fly one of the newest U. S. "war birds". Part two is a captured German industrial film giving a picture of Germany's war production and showing how she is still able to deliver terrific blows. With original German sound track.

Films Made for Specialised Industries

ALL AMERICAN: 3 reels, 28 minutes. (Aviation, but also suitable for general industrial use). Tells the story of the U. S. Army Air Forces in operation, taken by combat cameramen.

ROAD TO BERLIN: 2 reels, 20 minutes (Depots and Supply Services) shows a Nazi submarine "wolf pack" racing to intercept a convoy carrying urgently needed supplies. The picture stresses the importance of the many jobs, big and small, performed by men and women who are vital links in the life-line to the front.

WAR ON WHEELS: 2 reels, 22 minutes (Automotive services) is the film story of an American truck convoy ambushed by German tanks. The commentary brings home to the worker the importance of his role in our mounting war production.

The Industrial Incentive Division of the U. S. Navy Department has produced a number of subjects designed to illustrate the importance of the worker and his job and his close relationship with the fighting men of the U. S. Fleet.

THIS IS GUADALCANAL: 2 reels, 20 minutes. Many of the scenes of the Guadalcanal campaign are released here for the first time, giving an idea of what was endured during those grim months.

DECEMBER 7th: 2 reels, 20 minutes. Directed by John Ford, this film shows the destruction wrought in the treacherous Japanese attack as well as the impressive job of repair and reconstruction done in strenghtening and restoring the Pacific fortress.

FOR YOUR LIBRARY

AGRICULTURAL SHORTS

MURDER IN THE MILK CAN (English, black-and-white, sound, ½ reel, 4 minutes running time). An animated cartoon urging farmers to keep their milk clean and free from harmful bacteria.

Ever since the discovery of the existence of microbes by the Dutchman Leeuwenhoek in the seventeenth century mankind has waged a ceaseless battle against these invisible enemies.

The film points out the necessity of disinfecting pails by washing them with boiling water or hypochlorite solution. Hypochlorite is on the market under various brand names and serves as an efficient, cheap steriliser

By keeping pails clean, by tending cows and keeping dirt away from them, farmers can help build up a healthy generation.

MURDER IN THE MILK CAN is a rural short providing fun and knowledge for all types of rural audiences. A National Film Production. Released May 1st, 1944.

NEW HOME IN THE WEST

2 reels 16 minutes,
16mm only,
Kodachrome and black-and-white.
Sound. English and Ukrainian.

Tracing the pioneer work of the first Ukrainian settlers who came to Canada, seeking a land of freedom and opportunities, the film describes in its first half how these settlers, by unending work, opened up the West. It took much patient and constant labour; the early settlers had little money or machinery, but had courage and faith in the future. Soon rolling fields of grain shone in the sun, with every member of the family helping in the struggle to gain a living from the land of the new continent.

Nowadays Canadian-Ukrainian farmers have adapted themselves to the mechanised power and speed of modern farming methods. Towns have sprung up such as the typical Alberta settlement of Mundare with its modern facilities.

The second part of the film deals with the Ukrainian Jubilee festival celebrating this half century of progress since the adoption of Canada as homeland by the first Ukrainian pioneers. But no Ukrainian celebration is complete without dancing the old folk dances, gay colourful expressions of their love of life. Singing is another form of artistic expression in which Ukrainians excel. But in these grave years the young people need not only in gay festivals but also in earnest work to defend the land and liberties which they found in their new home.

NEW HOME IN THE WEST is available in English on a sales basis. A black-and-white preview print can be borrowed from the N. F. B. Preview Service. It is hoped that Kodachrome prints may be available at a later date. A Ukrainian version is in production for interested groups.

CHILDREN FIRST

A National Film Board production in the KNIFE AND FORK series.

2 reels. 14 minutes,
35mm & 16mm,
Black-and-white. Sound.

Growing children, 'teen-age youngsters, expectant and nursing mothers—those are priority milk consumers. In wartime, with money circulating more freely, more is spent on food. Rationing has boosted up the sales of milk, particularly in larger urban centres. What are minimum milk requirements? 1 1/3 pints per day for expectant mothers and 'teen-agers: ½pint a day for adults.

A child can only consume half an adult's food ration. Instead, its body needs more bone-building calcium, especially during its growing years. Milk, therefore, is its best protective food.

The second part of CHILDREN FIRST deals with the various milk products and derivatives such as cheese, butter, milk concentrates and condensed milk. Cheese is a first-class protective food, and large quantities of Canadian cheese are shipped abroad to supplement Britain's ration. Since the beginning of butter rationing, consumption has jumped up. More Canadians eat butter now than ever before. Powdered milk, easy to pack, store and transport overseas, is yet another drain on the country's supply of fluid milk. Half a pound of cheese goes into each Red Cross parcel.

With these urgent demands in mind, we must conserve and share our remaining fluid milk. During 1942 a record quantity of milk was produced by Canadian dairy farmers. At this moment production cannot be stepped up. Milk is a long-range product, and present trends show that industrial centres want more and more milk. We have reached a point where the flow of milk into the cities will have to be reduced. CHILDREN FIRST urges housewives to guard against waste and to cut out luxuries.

It is hoped that English and French prints will soon be available for general 16mm library distribution throughout Canada.

U. S. enquiries should be addressed to the National Film Board of Canada, 84 East Randolph Street, Chicago 1, Ill. U.S.A.

THE NEXT
WORLD IN ACTION
AND
CANADA CARRIES ON
RELEASES COMING SHORTLY TO
YOUR THEATRE!

When Asia Speaks
(WORLD IN ACTION)

Air Cadets
[in Technicolor]
(CANADA CARRIES ON)

All items appearing in the NATIONAL FILM BOARD NEWS can be reproduced with or without credit depending upon the type of publication used.

ONTARIO REPORTS . . . *Films in the Library*

BY HELEN PRINGLE

London Public Library Film Service

The film collection of the London Public Library was organised late in 1942 after considerable investigation of the growing importance of documentary, educational and music films as a medium in furthering education. It was found that ample testimony to their value had been gained through the schoolroom and through their extensive use in army education. This being so, the library felt that films should be made available for the general educational and cultural needs of the community as well as for formal educational institutions.

The development of their use now, during the war, performs a valuable service in increasing our awareness and understanding of the many complex problems the war has raised. They help us to a better understanding of the peoples and countries with which, and in which, our men fight, and thus perform a valuable service in building and maintaining morale.

Our investigation led us to the conclusion that the circulation of films should, therefore, be a natural function of the library. They supplement books. They reach many people, through their particular type of visual appeal, who do not or can not read books. They therefore broaden the library's usefulness to its community. It was further felt that since the library was a municipally supported institution and the use of films should be made available throughout Western Ontario, the service should be put on a paying basis. Thus a service charge to cover costs was instituted.

We consequently made arrangements with the National Film Society, the National Film Board, the National Parks Department and other educational agencies to become their regional depository. The National Film Society and the Parks Department loan us films from their circulating collections for three and six months periods, the National Film Board for indefinite periods, as far as War Information subjects are concerned.

The Library Board, towards the end of 1943, decided to supplement the film material available from these sources by the direct purchase of films covering subjects not supplied by them. This increased the scope and usefulness of the collection. A portion of the funds received from the service charge was set aside for this purpose.

Our collection now includes 169 films — 148 sound and 21 silent — covering many subjects dealing with the war, Canada's role in the present struggle, and our fighting allies. Travel, geography, music, nutrition, nature study, farming, farm husbandry, town planning, industrial and historical subjects are also well represented. The collection may be extended to include scientific subjects in the near future. These will be of particular use in collegiates of Western Ontario and in the university.

The value of this new service may be judged by the following statictics for our first year of operation—1943. There were showings before 712 audiences using 1,675 films and with 122,693 in attendance. In February 1944 alone, there were showings before 143 audiences using 314 films and with 16,136 people in attendance.

Groups using the service are extremely varied. They include formal educational institutions, social agencies, boys' groups, service clubs, church groups, the army, navy, and air force, business and manufacturing companies, farm groups, women's institutes, discussion groups and private individuals who borrow films for use in their homes. In February, for instance, 43% of the loans were made to the armed services where they are used largely for instruction, discussions and films with lecture evenings. This is one of the means whereby we have been able to co-operate closely with the educational programs in the services, both those organised by educational officers on stations and those organised by the Canadian Legion Educational Services and the Y.M.C.A. Further church, social and educational groups account for some 32%, schools 7%, business 9% and private loans some 6%.

The use of the film forum as a means of furthering adult educational activities has great possibilities in the future. In such forums, the film is used as a focal point for introducing the subject for discussion.

In addition to providing films themselves, the library, through the co-operation of the Board of Education, the Separate School Board, and business firms who own projectors, has operated a pool of projectors and projectionists. The various owners have agreed to put their projectors and operators at our disposal for the use of organisations who could not otherwise arrange for film showings. This has been done as a war and morale service with the support of the National Film Board.

Further, in conjunction with the National Film Board, the library has organised a rural circuit in the county. Showings are given regularly to schools in the afternoons and adults in the evenings. Recently the Middlesex Federation of Agriculture has taken over this work and is co-operating closely with the farm forums.

From these developments, it is fair to draw the conclusion that our library film service, which started eighteen months ago as an experiment, has proved its value as an educational medium that can act as an integral part of the program of the library along with books and other cultural collections.

To Film Librarians and Circuit Agents . . .

In order to keep our library records clear it would be of great assistance if film librarians and circuit agents would send us a letter covering each return shipment to Ottawa indicating titles and print numbers of films contained in such shipments. It is also essential that film cans be returned with their original labels. We should appreciate your co-operation in this matter.

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National Film Board NEWS

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WASHINGTON,D.C.
U.S.A. -FLM-

PUBLISHED BY THE NATIONAL FILM BOARD OF CANADA, OTTAWA

FILMS FOR FRENCH CANADA

It has been the aim of the National Film Board to provide French Canada with a French film program equivalent to the English film program. This has been the task of the French Unit.

The National Film Board French Unit releases fall into three main categories, namely, the news coverage, "LES REPORTAGES", released three times a month and reaching a theatre audience of 250,000 people per week. Secondly, in such cases where the film does not contain any direct speech, the French Unit of the National Film Board substitutes the English commentary by an appropriate French version such as CARRIERES DE FEMMES and LA GUERRE DES AIRS. The third category consists of films conceived and produced in French such as ECOLE DE LA VICTOIRE, UN DU 22ième, TERRE DE NOS AIEUX and the recent release PAYS DE MON COEUR.

The films as a whole describe Canada as a nation; however, some give a picture of Canada's rôle in the war; others show our life and industry or deal with the traditional background and customs of French Canada. THE CANADA CARRIES ON series, under the title "EN AVANT CANADA", the WORLD IN ACTION films ("LE MONDE EN ACTION") as well as the KNIFE AND FORK SERIES, under the French title "SERIE CORDON BLEU" form the bulk of the French language production. Films produced by the French Unit, such as CITE DE NOTRE DAME, TERRE DE NOS AIEUX, LA MOISSON DE LA MER are re-edited in English for the English Circuits.

Among the latest 16mm productions are:—

PAYS DE MON COEUR, a three-reeler picturing wild life and scenic beauty in the Gatineau Hills;

La série CORDON BLEU contains such subjects as SAVEZ-VOUS PLANTER DES CHOUX, encouraging Canadians to dig for Victory, AUX ENFANTS D'ABORD, emphasising the importance of milk for growing children. LA SOUPE EST CHAUDE, explaining what we should eat during a working day to keep up maximum strength and energy. CAOUTCHOUC is a study of the new synthetic rubber manufacture at Polymer, Sarnia, Ontario and is particularly suited for French Canadian industrial audiences.

A film dealing with the Unemployment Insurance Act and another on food conservation are in active preparation.

The French Unit has also produced four one-reelers, CHANTS POPULAIRES Nos. 1 to 4, each containing two popular French songs such as "Alouette", "Envoyons d'l'avant nos gens", "Là-bas sur ces montagnes", "Auprès de ma blonde", "Trois Canards", "Filez, filez o mon navire" and "J'ai tant dansé".

Furthermore the French Unit assisted the National War Finance Committee during the recent Sixth Victory Loan by preparing a French language program which was shown in theatres, on the regular rural and industrial circuits of the National Film Board and on the widespread auxiliary film circuit established by the National War Finance Committee for the period of the campaign.

Distribution in the Province of Quebec is now organised, and with the experienced co-operation of Mr. Joseph Morin, of the Service de ciné-photographie for the Province of Quebec, the National Film Board reaches a very representative French audience.

During 1943, on the circuits alone, our Quebec Distributors received 4,300 requests for our films; 20,061 films were loaned and 7,000 showings to a total audience of 1,700,000 given.

But the people of Quebec are not the only French audience served by L'Office national du film. A limited number of French films are made available through regional libraries in all Canadian provinces and plans are afoot to establish a French film service in North Africa.

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FILMS AND THE RADIO

In the field of education and information, radio and films would seem to be natural complements. During the past months the Canadian Broadcasting Corporation and the National Film Board of Canada have taken steps to put this theory into practice.

Immediate possibilities presented themselves in the rural field where the National Farm Forum was already filling a need by the time the National Film Board Rural Circuits were organised two and a half years ago. Last season, whenever feasible, the same topics were featured on Farm Forum programs and on the Rural Circuits. In December, for example, the radio broadcasts discussed health, and the main film on the circuits dealt with health and nutrition in rural schools.

Rural projectionists have been active in organising Radio Forums, and during the past year approximately a hundred new groups have resulted from their efforts. In Bruce County, the Radio Forum Director, the Board of the County Federation of Agriculture and the Film Board have worked closely together. Here, as in other places, films and radio have been used as a means to an end — community action. Development of co-operative services and the organisation of dental clinics have come as the direct result of joint activities in several areas. Plans are going forward to integrate the two projects even more closely during the coming season.

When the C.B.C. series OF THINGS TO COME was inaugurated last autumn with its accompanying country-wide organisation of Citizens' Forum by the Canadian Association of Adult Education, lists of suitable films to be used in this program were immediately prepared. Appropriate titles were included in the study material sent out to all registered forums. In most cases Regional Citizens' Forum Offices function with local film libraries so that full information on films is readily available to discussion groups in each province.

Although films were used by many centres in connection with Citizens' Forum, perhaps the most interesting project was undertaken in Winnipeg. A series of Film Forums were held in the Public Library in collaboration with the Regional Office at the University. The films chosen tied in directly with the subject of the week's broadcast, and representatives of Citizens' Forums from all over the City were given a further opportunity for exchange of opinion on matters of world-wide concern. Reading lists were prepared by the Librarian as additional follow-up and distributed at each meeting. These Film Forums met with immediate success and were enthusiastically supported throughout the winter. It is hoped that this pattern will be widely adopted next season.

Certain correlation has also been achieved between films and radio in the school field. Such subjects as PRINCE EDWARD ISLAND and NIAGARA FRONTIER were shown on the circuits during the same months that these subjects were covered by school broadcasts, and films to be used with many other programs were suggested in C.B.C. public relations material. This development will doubtless continue rapidly during the next few years as the supply of films increases and projection facilities become more widely available. We can look forward confidently to the day when every school or school district will possess its own projector and radio equipment, so that full advantage can be taken of the potentialities of these two media of education.

Other avenues of co-operation will open with the post-war period, and particularly in the years of reconstruction radio and films together can be a potent factor in encouraging wise and progressive planning for better communities.

The NATIONAL FILM BOARD NEWS will not be issued for the month of July, 1944. The next issue will be our August, 1944 number.

CURRENT RELEASES

The National Film Board of Canada announces the release of these subjects for general 16mm distribution throughout Canada. Application for the loan of prints should be made to our regional libraries established in twenty-six centres from coast to coast. Enquiries about Projection Service can be made through these repositories.

The War

A.B.C.A. (English, black-and-white sound, 2 reels, 16 minutes running time) was produced by the British Ministry of Information. In 1941, ABCA (The Army Bureau of Current Affairs) was started as an experiment, and has since become an integral part of the training of every British soldier. The usual abundant supply of rumours was circulating, the men were seeking the truth, and there was a crying need for facts. So ABCA's main object was to provide free discussion of all topics. The Army Film Unit recorded the ABCA experiment, and this film shows how ABCA began, some of the weekly meetings in full swing, and the training which is given to the officers who conduct the talk, with an emphasis on their function as chairmen, not lecturers.

THE DUTCH TRADITION (English, black-and-white, sound, reels, 27 minutes running time) produced by the Netherlands Information Bureau in collaboration with the National Film Board of Canada describes the contribution of the Netherlands to the United Nations' war-effort from 1940 until today. Against a background of Holland and the Netherlands East and West Indies the film demonstrates how Dutchmen all over the world have enlisted to fight for a Free Netherlands.

Community Planning

THE PEOPLE'S BANK (English, black-and-white, sound, 2 reels, 20 minutes running time) has been previously reviewed in these pages. Sponsored by the Provincial Departments of Agriculture and Co-operative Organisations, it tells the story of Canada's Credit Unions.

CONFERENCE AT YELLOW SPRINGS (English, black-and-white, sound, 1 reel, 11 minutes running time), produced for the United States Offices of War Information Overseas Division, tells how, in the small community of Yellow Springs, Ohio, (1,600 inhabitants) plans for a post-war world were evolved. A better life, not only a better living, that's what the people of Yellow Springs want their boys to come back to.

Cartoons

RAGANS. Two black-and-white cartoons in the Wartime Economics Series, entitled "National Income" and "Voluntary versus Compulsory Savings", have been deposited with libraries across Canada. They demonstrate graphically some of the country's most urgent monetary problems.

PREVIEW SERVICE

We have obtained through the courtesy of the United States Government a number of films on Latin-America specially produced for consumption in North America and released through the Office of the Co-ordinator of Inter-American Affairs.

Here are a number of selected titles:—

THE BRIDGE: 3 reels, 30 minutes. This documentary film was produced by Willard Van Dyke for the Foreign Policy Association. The thesis of "The Bridge" is that air travel and transportation will probably play a larger part than anything else in modernising the remote, inaccessable regions of Latin-America.

DOWN WHERE THE NORTH BEGINS: 2 reels, 21 minutes. Ecuador with its high mountains, tropic jungles, and modern cities is the locale of this film. The charm of Quito, the farms, the Indians working on their handicrafts, the sleeping volcanoes, and the pictorial beauty of the country combine to make this an interesting film.

HEART OF THE INCA EMPIRE: 2 reels, 19 minutes. A study of the ruins of the famous Inca city of Machu Picchu near Cuzco, Peru.

HOUSING IN CHILE: 2 reels, 19 minutes. The story of the progressive steps now being taken by Chile in the housing problem. A typical family in Santiago is shown first living in the slums and then being transported into one of the new housing projects.

ROADS SOUTH: 2 reels, 17 minutes. Julien Bryan made this film to show the status of transportation as it now exists in South America. A film giving details of an important economic phase of a new South America.

SILENT WAR: 1 reel, 10 minutes. The War against Yellow Fever now being waged by scientists in the jungles of Colombia. Shows how vaccine is made, dried, frozen, and transported by mule-pack to a town in the jungles of Colombia and how Yellow Fever is slowly being conquered in equatorial South America.

VERACRUZ: 2 reels, 18 minutes. With Joseph Cotten as narrator, we are conducted on a trip through Mexico's province of Veracruz.

WATER — FRIEND OR ENEMY: 1 reel, 10 minutes. A Walt Disney animated cartoon in colour. Shows how water can be a true friend to man if proper precautions are taken to see that it is pure. Illustrates correct measures in keeping spring and well water from being contaminated and suggests boiling of water as a final precaution.

YUCATAN: 2 reels, 20 minutes. A travelogue to Mexico's eastern province, Yucatan. With narration by Charles Bickford.

FOR YOUR LIBRARY

A FRIEND FOR SUPPER

1 reel, 10 minutes.
35mm & 16mm.
Black-and-white. Sound.

KNIFE AND FORK SERIES

The scene of this film is laid in a classroom in an urban Canadian school. The teacher explains how people in the Ukraine, in China and in occupied Europe are going hungry these days, and how Canada is helping to remedy the situation. A little boy whose compassion has been roused wants to invite a Russian, a British, a French, a Polish and a Chinese child to supper.

Another child points towards the impracticability of such a scheme. The teacher then describes the main foodstuffs exported by Canada; wheat — powdered milk — cheese — dehydrated fruits — powdered eggs — canned fish.

The moral: don't waste food if you want your comrades in other countries to survive.

16mm library prints will soon be available. It is also hoped that the French version INVITATION A SOUPER will be ready shortly.

SIX SLICES A DAY

1 reel, 9 minutes.
35mm & 16mm.
Black-and-white. Sound.

KNIFE AND FORK SERIES

The film opens with a warning to Canadians not to waste bread. We must not forget that two thirds of the world's population is still underfed. By providing cereals for babies and growing children we can give them an added supply of Vitamin B_1. Cereals, too, should be used more and more for stretching animal protein foods and by allowing more of these to go abroad for essential war needs.

Wholegrain bread has the largest Vitamin B_1 content. A diagram shows how in the bran layers of the grain as well as in the germ lie the main sources of this essential vitamin. By removing bran and germ, we "devitalise" our bread. Two ounces of oatmeal, for instance, have as much Vitamin B_1 as a whole loaf of white bread.

However, public taste prefers white bread, and nowadays Government standards guarantee a vitaminised white loaf. Canada approved wholewheat flour, though not as rich in Vitamin B_2 as wholemeal, has sufficient nutritional value to balance our diet.

Apart from stretching other foods, home-grown grains can provide variety and interest in restricted menus. Barley for use in soups, oats, bread crumbs, stale bread, bread pudding — there are a great number of cereal dishes with which the wartime housewife can serve her family's needs.

SIX SLICES A DAY urges new respect for cereals which fulfil the important task of releasing for export foods that take longer to produce. Canada in a post-war world will be a grain store for the hungry peoples of Europe.

It is hoped that 16mm library prints will soon be available. The French version, SIX TRANCHES DE PAIN, will be available shortly.

MACHINE SHOP WORK SERIES

At the beginning of 1942, the United States industry was faced with the colossal task of converting to war work and expanding its personnel to vast proportions. Millions of men and women, for the most part without any industrial experience, had to be employed in war plants and taught to manipulate the tools of production. The problem of mass training presented difficulties on a scale greater than had ever been met before. New and improved methods of imparting knowledge and skills had to be evolved to meet the situation.

As one contribution to the war effort, the U.S. Office of Education launched a program of film production to assist instructors in training the millions of new workers, and in improving the skill of those already employed. Forty-eight films were made on subjects of special importance. These included machine shop and shipbuilding skills. From the time the first set of films was placed in the hands of users, favourable acceptance has marked their employment in the hard test of actual practice. Industry, vocational schools, colleges, the U.S. Army and the Navy acquired them.

By the end of 1942, 19,546 prints were in use in the armed forces, in industry and in allied countries.

The National Film Board of Canada has at its disposal 16mm sound preview prints of these subjects a list of which is obtainable upon application to the N.F.B. Preview Service. We also have on hand single preview prints of French versions of these films covering approximately thirty-five out of the total of forty-eight subjects. Their length varies from one reel to three reels.

Further funds have been appropriated by the United States Congress for future production of such training films. The new program will include subjects on aviation, shipbuilding, machine shop and allied trades, and plans are afoot to provide subjects specially suited to post-war retraining and vocational guidance.

The U.S. Office of Education Films for war training are to be regarded as instructional tools. Like all tools, they are most helpful when they are used with care and skill. They will deliver their maximum contribution to training when used by competent instructors in an organised training program.

THE NEXT
WORLD IN ACTION
AND
CANADA CARRIES ON
RELEASES COMING SHORTLY TO YOUR THEATRE!

Fortress Japan
(WORLD IN ACTION)

Air Cadets
[in Technicolor]
(CANADA CARRIES ON)

All items appearing in the NATIONAL FILM BOARD NEWS can be reproduced with or without credit depending upon the type of publication used.

The N.F.B. Film Strip Program

Newest in the general field of National Film Board productions is the "still film". Those who remember the days of the magic lantern will at once recognise the source of the still film. It is the modern streamlined version of the old entertainment medium, but with a host of new applications and up-to-the-minute innovations.

A still film is simply a series of photographs printed on a piece of 35mm motion picture film which can be projected on a screen one frame at a time. The average film consists of fifty separate frames, runs approximately fifteen minutes. Its main physical feature is its practicability; projector, film and narration can just about be carried in an overcoat pocket.

Most recent application to the still film is sound. Today, many of these presentations come dramatised with characters speaking, musical backgrounds, voice and instrumental solos, if the script calls for them. The tinkle of a bell directly on the sound disc cues the projectionist to turn each frame. Where a film is made without a recorded sound track, the commentary can be read from a prepared script. Since the image can be held on the screen as long as necessary, any discussion can be conducted or explanation given before proceeding to the next frame.

In industry, the use of strip films has been of particular value in training new workers quickly and efficiently. Films have now been produced for each section of the plant, dealing with each operation of the factory. They have proven effective aids in instructing and have simplified training and reduced the learning time required.

The Film Board has now embarked on a program of still films covering a wide range of subjects. These, along with the films produced in other countries, are now available for general distribution. Further information on this service may be obtained by writing to the Distribution Branch, National Film Board, Ottawa.

WEEDS AND THEIR CONTROL

A two-reel sound film photographed in Kodachrome and dealing with the control of weeds is in production at present and scheduled to run on the National Film Board Rural Circuits. Bearing the working title WEEDS AND THEIR CONTROL, this film was made for the Canadian Department of Agriculture. The purpose of this short is to show the loss caused by weeds to the farmer and how he can identify, and control them. Approximately ten of the most frequent weeds are used to demonstrate what is one of the most urgent national problems.

Information Sheets

The National Film Board Distribution Department issues from time to time descriptive Information Sheets covering new 16mm productions. These bulletins which are to be considered as advance information contain a physical description as well as a short summary of the film's contents. Finally, under the heading "Suggested Uses", there is a reference to the type of audience aimed at.

These Information Sheets are also available in French, covering N.F.B. French productions.

Kindly inform us if you wish to be placed on our mailing list.

THE CANADIAN COMMITTEE

FILMS for the R.A.F.

In a report published by the Canadian Committee, an organisation set up to provide special services to Royal Air Force personnel posted to British Commonwealth Air Training Plan Units in Canada and aiming at "promoting wider knowledge and better understanding of Canada both at home and abroad", appears an item dealing with film activities during the fiscal year 1943-44.

A monthly program of Canadian documentary films was provided to R.A.F. stations by the Canadian Committee. The films included scenic and educational shorts as well as human geography subjects. Five geographical circuits were set up, with special arrangements for the stations at Sydney, B.C. and Moncton, N.B.

The stations were supplied with a regular flow of films about Canada; travel, wild life, North Country, lumbering, mining, manufacturing, history, sociology, arts and crafts, geography, etc. The subjects were rented from the National Film Board, National Film Society, provincial governments, public and commercial organisations and private individuals. Film notes related to the films were supplied for distribution to the audiences.

These film showings must compete with many counter attractions on the stations, and attendance is entirely a matter of voluntary interest in Canada. Attendance reports indicate increasing audiences month after month, and comments from Education Officers are highly satisfactory. Up to the time of writing, 57 film subjects had received 210 screenings on the R.A.F. circuits, with an attendance total exceeding 12,000. Further screenings involving about 100 films at the Sydney and Moncton stations accounted for additional attendance of some thousands of men.

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A.P.S.—6-44

Detroit Public Schools
Department of Radio
Education
9345 Lawton Avenue

THE SCHOOL SPOTLIGHT
"Health and Physical Education
Through the Years"
Station: W J R
Date: Thursday, April 13, 1944
Time: 9:45 - 10:00 A.M.

CHARACTERS

OPERATOR
GENERAL
LIEUTENANT
RIDER
OFFICER
JOHN
MARY
MORTIMER
CHAIRMAN
BIGELOW
TEACHER
JACK
HARRY
DOCTOR
LOUISE
HARRIET

VOICES

SOUND EFFECTS

CIVIL WAR BATTLE IN DISTANCE
HORSE GALLOPING
OPENING OF DISPATCH
DOOR OPENS OFF

MUSIC

Detroit Public Schools
Department of Radio
Education
9345 Lawton Avenue

THE SCHOOL SPOTLIGHT
"Health and Physical Education
Through the Years."
Station: W J R
Date: Thursday, April 13, 1944
Time: 9:45 - 10:00 A.M.

SIGNATURE: COUNTRY GARDENS...UP...THEN UNDER

OPERATOR: Good morning, everybody. This is the Operator of "The School Spotlight" speaking to you from the Grand Ballroom of the Hotel Statler. Here, the health and physical education teachers of Detroit and many other cities are assembled for a conference. We want to say that we are very proud that the health and physical education teachers invited us to come to their meeting this morning, and we hope they will enjoy our play...entitled..."Health and Physical Education Through the Years."

SOUND: MUSIC

OPERATOR: Today we shine our School Spotlight on three wars which our country has fought, and we shall show how these wars have called our attention to the need for good health.

Until the Civil War, most Americans were not very much concerned about sports and exercises. At that time, the idea that boys and girls needed special games and exercises to help them grow up to be healthy men and women would have been laughed at. But the Civil War taught the people a lesson about the youth of the United States. Come with us now

(MORE)

in imagination to a camp of the Grand Army of the Republic. In the distance one of the battles of the Civil War is being fought. The commanding general and his staff anxiously wait for news from the battlefront.

SOUND: CIVIL WAR BATTLE IN DISTANCE

GENERAL: I wish I could be at the battlefront. This waiting is very trying.

LIEUTENANT: I know, General.

GENERAL: And our forces are calling for reserves. Why? Our plan of battle seemed well adapted to our situation and yet...well, the reserves are all gone now. All that's left is retreat. Why don't we hear how things are going?

LIEUTENANT: They say no news is good news.

GENERAL: I hope so, Lieutenant. I hope so.

SOUND: HORSE GALLOPING

GENERAL: Wait.

LIEUTENANT: What is it, sir?

GENERAL: A rider.

LIEUTENANT: Yes, sir. (FADE) I'll see who it is, sir.

SOUND: HORSE CLATTERS UP TO STOP ON EARTH

RIDER: (WINDED) A dispatch for the General, sir.

LIEUTENANT: I'll take it.

RIDER: Here you are, sir. I'm to wait for an answer.

LIEUTENANT: (FADE) Better rest while you can, soldier. (COME ON) A dispatch, sir. The rider is waiting for an answer.

SOUND: OPENING OF DISPATCH

GENERAL: (READING) Reserves needed...cannot hold position longer...men forced to give ground. (TO AIDE) Lieutenant.

LIEUTENANT: Yes, sir.

GENERAL: Tell the rider to take this message.
To all Commanders:
Retreat.
We've got to save what we can from this battle.

LIEUTENANT: (OFF) Yes, sir. (COME ON) Rider, your message is... "Retreat."

RIDER: (GULP) Retreat, sir?

LIEUTENANT: Yes. Well...that's all.

RIDER: Yes, sir. (TO HORSE) (EFFORT) Steady, boy..Hup, boy!

SOUND: HORSE TO GALLOP OFF

SOUND: MUSIC

MEN: TALKING...SERIOUS...ABOUT BATTLE

GENERAL: Gentlemen, we might as well admit we've suffered a disastrous defeat at the hands of the Rebels. Why? You officers know the answer, because you know your men. What happened?

OFFICER: I think I can answer that question, sir. My men are as brave as any man in uniform, but at present the Rebels have the edge on our men in physical condition.

GENERAL: What's this? Weren't those men conditioned for battle?

OFFICER: Yes, sir. But the few months training our men have had cannot match the years of training the Rebels have had.

GENERAL: I think I see what you're getting at. You refer to those southern military academies where the boys not only practic games and horsemanship but were given strenuous physical exercises as well.

OFFICER: Yes, sir.

GENERAL: I think the moral's plain, gentlemen. Our present task is to continue to harden these men for battle..., but after the war we must see to it that our men have opportunities for exercise that will build and strengthen their bodies. Not only for the stern demands of war, but for vigorous peace time living as well.

OPERATOR: (PAUSE) And so, after the Civil War many gymnasiums were built...and various systems of exercise were worked out. Most of these included the use of gymnasium apparatus such as ladders, parallel bars and other equipment. One group of instructors favored the use of bar bells for weight lifting. All these systems stressed the building of big muscles. As time went by, one group of Americans rose to protest against these "strong man" exercises. At public meetings they challenged the advocates of strength and big muscles.

MUSIC: UP AND OUT

CROWD: APPLAUDING

MORTIMER: And furthermore, ladies and gentlemen, the man of great strength is more able to fight life's battles than his puny brother. That's why I advocate making the United States a nation of strong men. Thank you.

CROWD: APPLAUSE

JOHN: Mr. Chairman. Mr. Chairman, may I make a few remarks?

CROWD: It's that reformer. We don't want him. Keep quiet, you. Sit down. Boo! Boo!

CHAIRMAN: Order. Order, please.

JOHN: The speaker wants to make us a nation of strong men, but he does not mention our women or our children. I say let those who are strong enough use your gymnasiums...but what about the weaklings...the women, the children?

VOICE: Do you seriously suggest that women should be permitted in the gymnasiums?

JOHN: Not only do I suggest that, but I advocate that exercise be given to boys and girls in the schools.

CROWD: Exercise in the schools? He's crazy! Sit down. Boo! Go back home where you belong. Sit down and be quiet.

CHAIRMAN: Order. I must insist on order.

JOHN: Ladies and gentlemen. Who are more important to our nation than our women and children? Remember we say let those who wish to be weight lifters and gymnasts and who are strong enough to do so...but only a few can do that. And we say once again that we cannot afford to ignore the needs of our women and children.

CROWD: Keep quiet. Boo! No. Let's hear him. Quiet. Let's listen.

VOICE: What kind of a plan do you have in mind?

CROWD: Yes, what's your idea? Let's hear what he has to say. Tell us your plan.

CHAIRMAN: Order. Let's have it quiet, please.

JOHN: Ladies and gentlemen, my plan of exercise does away with all weights, all gymnasium apparatus. I believe that a gymnasium is not for the strong... but for the weak.

CROWD: REACTION...UNBELIEVING

JOHN: After all...our strong men do not need exercise. It is our weak men...our women...our children who need exercise.

CROWD: REACTION

VOICE: How could our children exercise in school? We have no gymnasiums.

JOHN: We must build gymnasiums in our schools. After all the future of our nation depends on our boys and girls. Besides my exercises are so simple that children could practice them in any classroom and men and women could do them at home.

CROWD: REACTION

BIGELOW: Mr. Chairman.

CHAIRMAN: Yes, Mr. Bigelow

BIGELOW: I, for one, think we should learn more about this new idea. I think it has merit.

CROWD: APPROVAL

BIGELOW: I move that we meet again next week to hear more about this new health plan...and I move that we invite the Mayor and the school board to be here. I think this new plan may solve all our health problems.

CROWD: APPROVAL...APPLAUSE

MUSIC: UP AND OUT

OPERATOR: Yes...about the year 1870....the people began to realize that women and children needed exercises as well as men. Schools built gymnasiums. At first girls were not allowed to take part in games and exercises. But as time went by, the people realized that girls needed exercise just as much as boys... and could play certain games just as well as boys. For a long time though most of the gym period was passed in formal exercises. The parents and grand parents listening in to today's program will remember.

TEACHER: (COME ON) Class, attention. Hands on hips, place. Arms forward, stretch. Hands on hip, place. Trunk forward, bend. Hands on hip, place. Arms forward, stretch.

OPERATOR: But another war was to show the American people that they had not yet solved the problem of building a healthy nation. When the first world war came... many young men wished to volunteer for service in the army. Yet often their hopes were not realized.

DOCTOR: Step right on this scale, please, young man.

HARRY: Yes, doctor.

DOCTOR: Hmmmmmmmmmm. Weight....145 pounds. Height...5'11"

HARRY: What's next, doctor?

DOCTOR: Stand over here. I want to examine your heart. (PAUSE) Hmmmmmmm.

HARRY: Anything wrong?

DOCTOR: One more examination. Open your mouth, please.

HARRY: Yes, sir.

DOCTOR: (PAUSE) Did I hear you tell your friend that you wanted to be in the army right away?

HARRY: Yes, sir!

DOCTOR: I'm afraid you won't qualify, son.

HARRY: I won't! Gosh, doctor, I don't know what to say. I thought sure I'd pass. I'm in good condition.And...

DOCTOR: You mean your muscles are hardened up?

HARRY: Yes, sir. I play football and....

DOCTOR: There's a lot more to good health than hard muscles, young man. The army must have a strong foundation of physical well being to build on.

HARRY: What's the matter with me, Doctor?

DOCTOR: Well, for one thing you're underweight. For another, your teeth are in very bad condition and you have what might develop into a heart condition if you continue heavy exercise.

HARRY: I see.

DOCTOR: I advise you to see a doctor and start getting yourself built up. But...I'm afraid you'll have to forget the air service.

MUSIC: UP AND OUT

OPERATOR: Yes, the first World War revealed that a great many of our young men were not in good physical condition. And yet there were gymnasiums in the schools...there were playgrounds in the cities...and there were , teachers and coaches instructing boys and girls and men and women in exercises and games. What was wrong? Let's listen as two physical education teachers talk over the problem.

LOUISE: Have you read about all these young men being rejected by the Army?

HARRIET: Yes, I have. And some of them were boys I used to have in gym classes. The thing that is so tragic about it is that in many cases they're boys our Board of Education doctors examined and notified of their defects. Then the school nurse followed up and talked to their parents. But sometimes nothing was done.

LOUISE: Some of the parents cooperate after the examinations, but many either don't have the money to take their children to doctors or they just let the matter slide. Somehow we must find some way of showing people how important it is to take care of heart cases, bad teeth cases and all the others...as soon as they are discovered.

HARRIET: Yes, every boy and girl, every man and woman who is not in good health is a loss to the nation. But what can we do? We can't force parents to give medical attention to their children.

LOUISE: There's only one thing we can do. Teach the boys and girls the simple rules of health: like eating the right foods, getting the right rest, and so on... to build a healthy body.

HARRIET: And teach their parents how important it is to follow up medical examinations by the treatment the doctor calls for.

LOUISE: We'll do it. We'll teach boys and girls how to care for their teeth...what foods to eat and how to eat them. And everything else they need to know to be healthy.

HARRIET: And we'll teach parents, too.

LOUISE: We'll be taking on a big job, but it's one that's worth doing; for to be strong, our nation must be healthy.

MUSIC: UP AND OUT

OPERATOR: Thus did Americans come to believe that if we were to be as healthy as we should be, we must not only exercise and play games but we must learn more about eating the right foods; we should learn and follow all health rules; we should have regular examinations by doctors and dentists; and we should follow those examinations by the treatment the doctors recommended. Today Americans are fighting the second World War... and once more war has made us realize how important health is to our country. In Detroit, the schools are helping to win the war by preparing children for healthy vigorous living on two fronts. First, the home front!

VOICE I: Doctors and dentists examine the school children regularly to discover those who need special attention.

VOICE II: The health and physical education teachers not only help children learn to exercise and play games, but see that children learn the rules of health as well.

OPERATOR: And the war front.

VOICE III: And in the high schools today the boys and girls are going through the physical fitness program which helps prepare them for service in the armed forces.

OPERATOR: This health and physical education program is far from perfect...you educators meeting today are seeking ways to improve your teaching...but as we look back on those early days when there were no gymnasiums in the schools and women were barred from taking exercises...we may truthfully say that we've come a long way. And if parents and teachers and children continue to work together on this problem we know we'll reach our goal...and make our country the healthiest nation in the world.

SOUND: MUSIC

OPERATOR: The following students took part in this program:

____

____

____

And now here is ________________________ of the Detroit Public Schools to speak to you.

____________ ____ Today's program concludes the School Spotlight series for this year.

Each Thursday morning from 9:45 to 10:00 A.M., Station WJR has made available an education program designed for classroom listeners. In so doing they performed an important service for education. We, of the Detroit Public Schools, are happy to have had the opportunity of presenting the Thursday morning programs in this daily series of educational broadcasts. In presenting "The School Spotlight" Station WJR has not only made the time period available but they have generously given the services of their staff. WJR engineers, producers, sound technicians, and announcers have contributed notably to whatever success our programs may have had. We express our appreciation to Station WJR, its management and its staff, and we hope that this same happy relationship may be resumed next year.

Thank you.

SOUND: THEME

What Others Think Of "VITAFILM" For Print Protection

Cathedral Films

HOLLYWOOD CALIFORNIA P O BOX 589 ◆◆◆ REVEREND JAMES K. FRIEDRICH PRODUCER

Nov. 16, 1943

R. D. Hanish
93 East Longview Ave.,
Columbus, Ohio

Gentlemen:

We have been using VITAFILM for a year and find it the finest processing fluid on the market. We have recommended it to all of our distributors and suggest that they use it regularly to keep and clean their films properly.

Will you kindly send us a gallon of the fluid at this time? We are getting low and will need it as soon as possible so would appreciate your immediate attention to this order.

Sincerely yours,
CATHEDRAL FILMS, INC.,
By James K Friedrich
James K. Friedrich

THE FOLLOWING CATHEDRAL 16mm SOUND FILMS NOW AVAILABLE

"A CERTAIN NOBLEMAN"
"THE CHILD OF BETHLEHEM"
"WHO IS MY NEIGHBOR"
"STORY OF THE PRODIGAL SON"
"NO GREATER POWER" (Story of Zaccheus)
"JOURNEY INTO FAITH"

BETTER PRINT CARE

WITH

VITAFILM

MEANS CLEANER and LONGER PRINT WEAR – NO WARPING – BUCKLING – STRONGER FILM PERFORATIONS – LESS FILM SPLICING – LESS SURFACE SCRATCHES . . . . SAVES FILM INSPECTION TIME – and UPKEEP COST OF PRINTS.

"VITAFILM" is not merely a film cleaning fluid for old film, but when applied to both surfaces, the back of film as well as the emulsion surface of new prints, not only protects both surfaces against abrasion, wear and scratches, but also eliminates new "GREEN" film emulsion, to prevent new prints sticking, chattering, checking or pulled film perforations the first few times of new print projection.

"VITAFILM" eliminates projector "CLAW MARKING" film perforations of new 16mm prints.

"VITAFILM" applied to new and old prints at intervals, prevents weak film perforations, due to drying out of prints . . . Safeguards both surfaces against Abrasion, Excessive Wear, Scratches, not only during print projection, but also during the course of print rewinding.

Excessive friction created by rapid film winding after each film projection and film inspection, causes more surface abrasion, wear and other film damages, than the projection of prints.

"VITAFILM PROCESSED PRINT SURFACES" are always protected against damages, during the course of projection and print rewinding.

"WHY COLORED AND BLACK AND WHITE PRINTS NEED **VITAFILM"** To eliminate New "GREEN" film emulsion of new prints to prevent Sticking, Chattering, Surface Scratching, Checked or Pull, Film Perforations, the first few projections. For old prints to prevent Dryness of Prints, Clean and Brilliant for "SNOW WHITE" picture screening, and to protect the Physical Condition of prints for Film Perforation Protection. Double the Life of Prints with "VITAFILM."

Prices — 4 Oz. Bottle 50c, Pint $1.25, Quart $2.00, Gallon $6.00
F. O. B., Columbus, Ohio

Mfg. By

R. D. HANISH COMPANY

93 EAST LONGVIEW AVENUE
COLUMBUS, 2, OHIO

IT IS "NOT" AN UNNECESSARY EVIL

PROTECTING the PHYSICAL CONDITION of PRINTS

WITH VITAFILM

PRINTS BECOMING DRY
FILM PERFORATIONS THEN SHOW SIGNS of
WEAKENING and BREAKING DOWN

"VITAFILM PROCESSED PRINTS" are always clean and project more smoothly. Perforations always tough and durable, requiring less splicing. Lessens Film Inspection time and Upkeep Cost.

PROTECTS PRINTS AGAINST
BUCKLING or WARPING

R. D. HANISH COMPANY

Return Postage Guaranteed

Sec. 562, P. L. & R.

PRINT SURFACE FRICTION, When REWINDING PRINTS, causes more surface abrasion, cinch marks and light scratches, than is caused by print projection.

WOMEN'S BUREAU
APR 13 1944
DEPARTMENT OF LABOR

Protect Both Print Surfaces

With

VITAFILM

R. D. HANISH COMPANY
93 East Longview Avenue
Columbus, 2, Ohio

Women's Bureau,
Film Library Service Dept.
U.S. Department of Labor,
Washington, D.C.

Mr. Harold Butler, H. M. Minister,
cordially invites you to a preview of new
British Ministry of Information Films

"D Day"
"British Film Magazine No. 2" "New Zealand"
"Looking Through Glass" "Common Cause"
and
"Lili Marlene"

at the Department of Interior Auditorium
(air conditioned)
C Street between 18th and 19th Streets n.w.

Thursday, July 13th, 1944, at 8:45 p.m.

BRITISH INFORMATION SERVICES
1336 New York Avenue
WASHINGTON 5, D. C.

This invitation admits ~~two~~ 3

Mr. Harold Butler, H. M. Minister

requests your presence at a preview of the re-edited version of

"Coastal Command"

a British Ministry of Information Film
(ONE HOUR RUNNING TIME)

at the National Archives Auditorium
(PENNSYLVANIA AVENUE AT 8TH STREET N. W.)

Monday, November 22nd, 1943 at 9:00 p. m.

BRITISH INFORMATION SERVICES
1336 NEW YORK AVENUE
WASHINGTON 5. D. C.

THIS INVITATION ADMITS TWO

82—2-44

S № 16

BRITISH INFORMATION SERVICES

1336 NEW YORK AVENUE, N.W.
WASHINGTON 5, D. C.

Telephone: EXECUTIVE 8525

WOMEN'S BU
APR 3 19
DEPARTMENT OF LAB

The following ~~16mm~~ 35mm. films have been booked for private screening, *NO C.O.D.*

SCREENING DATE	DEP. NO.	TITLES	REELS	PRINT NUMBER
April 4, at 4.00 p. m.		LIFTING	1	
		WARTIME FACTORY	1	

Ordered by:

Department of Labor
Women's Bureau
14th & Constitution Ave NW
Washington 25, D. C.

Att: Miss Mary Anderson, Chief

Dispatch Date:

Via

Pick-up by BIS messenger

Please return films on the same reels and in the containers supplied with them, if possible not rewound, to

PAUL BRAND, FILM LIBRARY
816 Connecticut Avenue, N.W.
Washington 6, D. C.

Return date April 5

Via BIS MESSENGER

IMPORTANT!
Your prompt report on attached card is urgently requested.

Special Remarks:

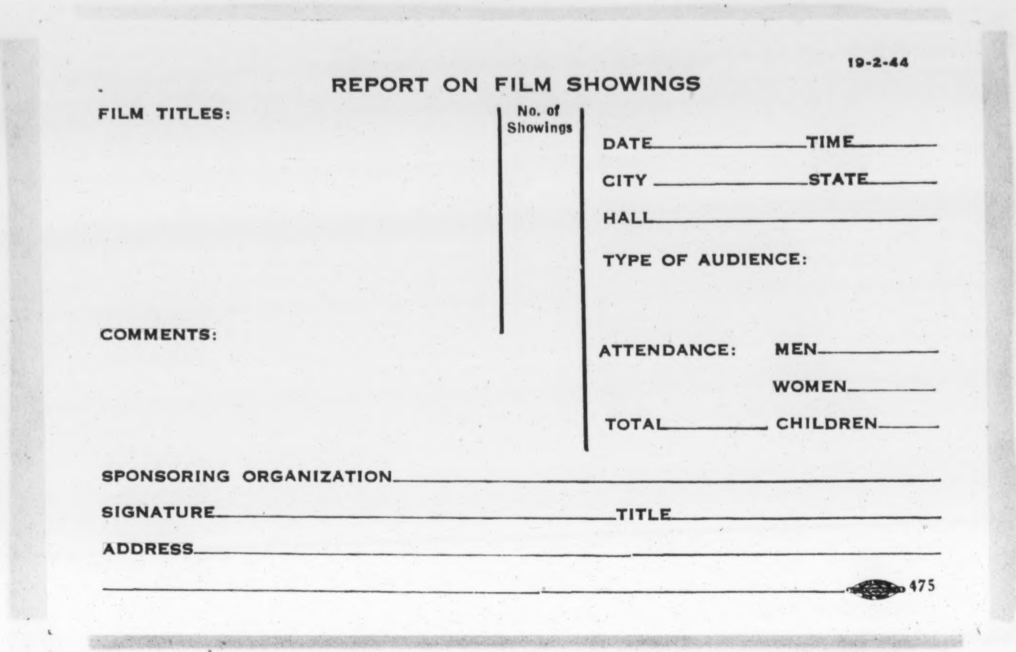
This screening is to be held in the OWI Screening Room Room 2106, Tempo V, 14th & Pennsylvania Avenue, Tuesday April 4, 1944 at 4 p. m.

Neville Gardiner

Borrowers are responsible for the safe return of the films, and for the cost of repairing films damaged by them.

333

S № 16



19-2-44

REPORT ON FILM SHOWINGS

FILM TITLES:

No. of Showings

DATE ______ TIME ______

CITY ______ STATE ______

HALL ______

TYPE OF AUDIENCE:

COMMENTS:

ATTENDANCE: MEN ______

WOMEN ______

TOTAL ______ CHILDREN ______

SPONSORING ORGANIZATION ______

SIGNATURE ______ TITLE ______

ADDRESS ______

______ 475

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FIRST CLASS PERMIT NO. 42122 SEC. 510 P. L. & R., NEW YORK, N. Y.

BRITISH INFORMATION SERVICES
1336 New York Ave., N.W.
Washington 5, D. C.

RATIONING

16MM SOUND
FILMS OF

BRITAIN AT WAR

1944

NUTRITION

This leaflet is published by British Information Services, New York, N. Y.

RATIONING AND NUTRITION

A.B.C.D. OF HEALTH **1 reel 9 minutes**

A pictorial analysis of vitamins necessary for health, presented through a combination of animated cartoon and photography. This is a very simple, clear, and charming film which is suitable for use with children as well as adults. **$10.00**

DINNER AT SCHOOL **1 reel 10 minutes**

Indicates the need for increasing the serving of dinners at school in wartime, partly because so many mothers are working in war industries, and partly to save labor and supplies. The film describes how this service has increased in England with half a million children having meals in schools, and 200 school canteens opening each month. **$10.50**

EATING AT WORK **1 reel 13 minutes**

Rationing, overtime, night shifts and housewives at work in war industries make it more and more difficult for workers to get adequate nourishment. Factory canteens properly managed by nutritionists aware of the food requirements of working men and women are one of the answers that Britain has found to this problem. The film shows how one such canteen is run and with what benefit to the workers. **$13.00**

FOR CHILDREN ONLY **1 reel 8 minutes**

Explains how deficiency of vitamin C in the wartime diet of British children is overcome by special rationing of cod-liver oil and fruit juices. **$8.00**

PARTNERS IN CRIME **1 reel 9 minutes**

A dramatization aimed at showing the public that resorting to the Black Market in order to get a little more than the share allowed by rationing is a crime against the common interest. **$10.00**

The price listed after each film is the sale price.

WORLD OF PLENTY

A Paul Rotha Production

WORLD OF PLENTY is an original documentary using modern film technique to explain to the public one of the great world problems about which common people as well as statesmen must be compelled to think.

Its subject is food—the production of food, its uneven distribution and waste in peacetime, the control made necessary by war, and the necessity for planning after the war. Facts and arguments are clearly combined and appeal to the eye as well as to the mind, so that while we listen to Sir John Orr stating inexorably the case for world planning, scenes in fields, factories and docks tie the arguments to living people.

Rotha and the late Eric Knight have elaborated a number of devices for holding the attention. Not only do they interview experts, Sir John Orr, Lord Woolton, Claude R. Wickard, Wellington Koo, etc., but a Londoner going shopping, a middlewest farmer, a policeman on duty. The camera picks them up and they talk out of the screen. Narrators, English and American, swing the argument across continents, asking and answering as they go.

There is a vivid and often dramatic use of maps and diagrams which clarifies the argument and illuminates the facts.

5 reels 45 minutes **$47.00**

For loan conditions see general list.

ALL THE FILMS IN THIS SPECIAL LIST ARE AVAILABLE FROM THE FOLLOWING DEPOSITORIES ON GIVING AT LEAST TWO WEEKS' NOTICE:

Regional Depositories

Washington, D. C.

The Film Officer,
British Information Services,
1336 New York Avenue, N.W., Washington 5, D. C.
Tel. Executive 8525

Chicago, Illinois

The Film Officer,
British Information Services,
360 North Michigan Ave., Chicago 1, Ill.
Tel. Andover 1733

San Francisco, California

The Film Officer,
British Information Services,
260 California Street, San Francisco 11, Calif.
Tel. Sutter 6634

Hollywood, California

The Film Officer,
British Information Services,
1005 Taft Building, 1680 North Vine St., Hollywood 28, Calif.
Tel. Hollywood 1634

New Orleans, Louisiana

The Film Officer,
British Information Services,
1238 Canal Building, New Orleans 12, La.
Tel. Magnolia 4080

Central Depository

New York, N. Y.

Film Division,
British Information Services,
30 Rockefeller Plaza,
New York 20, N. Y.
Tel. CIrcle 6-5100

THE FILMS ARE ALSO OBTAINABLE FROM THE BRITISH CONSULAR OFFICES AT:

Atlanta, Ga.
Baltimore, Md.
Boston, Mass.
Cincinnati, Ohio
Cleveland, Ohio
Denver, Colo.
Detroit, Mich.
Houston, Tex.
Jacksonville, Fla.
Kansas City, Mo.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
St. Louis, Mo.
St. Paul, Minn.
Seattle, Wash.
Spokane, Wash.

BRITISH INFORMATION SERVICES

An agency of the British Government

PRINTED IN U. S. A. 495

16MM SOUND FILMS of BRITAIN AT WAR

GENERAL LIST

1944

Photograph by
André Kertesz

This booklet is published by The British Information Services, New York, N. Y.

THE PHOTOGRAPH on the cover is of the bronze bust entitled *Desert Victory*, made by the famous American sculptor, Jo Davidson.

When Mr. Davidson first saw the motion picture, *Desert Victory*, he was so moved by the faces of the British soldiers going into battle that he was inspired to portray one of them in bronze. The result is a most arresting piece of sculpture, which possesses all the tension and determination of a soldier at zero hour.

FOREWORD

THE STORY of Britain's war effort is continued in these pictures. That story has changed a good deal since the first list in this series was published, and the change is faithfully reflected in the contents of the films. *London Can Take It* has given place to *Desert Victory;* the story of the revival of British food production is told in *The Great Harvest;* and hopes for the future of all nations are expressed in *World of Plenty.*

There is no way in which the changing face of wartime Britain can be seen so clearly as in these pictures. They were made in the first place for British audiences, but previous experience gives ample ground for the belief that they will be of interest to American audiences. Meanwhile, the factual films about America which are now receiving wide distribution in Britain are performing an equivalent service for the British people.

SALES

The figure quoted under each title is the 16 mm. sale price. Films are priced according to length. ***(Target for Tonight*, *Dover*** and ***Listen to Britain*** are listed at special prices). Prospective purchasers may apply to the depositories for one-day screening prints at no charge apart from transportation costs.

LOAN SERVICE

Films are loaned on a service charge basis
from all British depositories in the U. S. A.

Conditions of Loan

Film bookings are made on the understanding that the borrower accepts these conditions of loan:

(1) *Sound film projector* and operator must be provided by the borrower. All films listed are sound films, and *cannot be shown on a silent projector.*

(2) Borrowers are responsible for the *safe return of the film* and for the cost of repairing films damaged by them.

(3) Films must be accepted *Railway Express Collect* and returned *Railway Express Prepaid,* the day after the last showing for which they were borrowed.

(4) Applications must specify *definite dates,* with alternatives if possible.

(5) *Alternative titles* should also be given, if possible, as some of the films requested may not be available on the dates named.

(6) Borrowers agree to fill out and return the *report blank.*

Charges

The standard *service charge* on 16 mm. prints is 50¢ for the first reel plus 25¢ for each additional reel in the same shipment, for one day's use. Extra days up to seven, 10¢ per day per shipment. Longer loans by special arrangement. Service charges are payable C.O.D.

Notes for Projectionist

1. Films loaned from British depositories are normally supplied on single reels, 2-, 3- and 4-reel films being mounted on 800′, 1200′, and 1600′ reels respectively. Make sure you have appropriate take-up reels.
2. Return films on the reels and in the containers supplied with them. Rewind if necessary, but save the examiner's time by returning "not rewound" whenever possible.

BRITAIN AT WAR

THE ARMED SERVICES

Army

BRITAIN'S PARATROOPS
1 reel 10 minutes

Reportage by Bob Considine of the training of parachute troops and their functions in warfare. Many interesting scenes of parachutists learning and in rehearsal for their dangerous and important combat duties. **$10.00**

LIFT YOUR HEAD
1 reel 11 minutes

The story of the labor battalion made up of German and Austrian anti-Fascists who escaped to England. The picture indicates some of the torments they endured in Dachau and elsewhere, and shows them training grimly for the day when they will strike back, regardless of all risks to themselves or their kin. **$11.50**

CAMERAMEN AT WAR
2 reels 15 minutes

The story of the heroes of the British Service Film Units and the newsreels who work in the front line and film the war as it really is. **$16.00**

LOFOTEN **1 reel 7 minutes**

This is an eye-witness film of the famous raid on the German-held Lofoten Islands on March 3, 1941. Remarkable scenes taken by Army cameramen of the actual landing, seizure of prisoners, destruction of supplies and return to the raiding ships. **$7.50**

ABCA **2 reels 16 minutes**

A detailed description of part of the British Army's Education Scheme. The Army Bureau of Current Affairs was started in 1941 to promote discussion of the war in the British Army. All the techniques used by ABCA to promote an understanding of all aspects of the war are described in the course of this film. **$17.00**

STREET FIGHTING
1 reel 14 minutes

A realistic demonstration by the Coldstream Guards of the tactics of house-to-house and street fighting. Especially interesting in a discussion of the defense of a city in modern warfare. **$14.00**

VAAGSO RAID **2 reels 15 minutes**

Document taken during a Commando raid on these islands showing actual street fighting and capture of Nazi prisoners. **$16.50**

VIA PERSIA **1 reel 8 minutes**

Army Film Unit production with diagram maps, shows transportation of heavy war materials through Iran for Russia. **$9.00**

SHOCK TROOPS **1 reel 11 minutes**

Britain's Commandos go through a tough workout on their training course; then combine with Navy and Air Forces to raid the enemy coast. **$11.50**

DESERT VICTORY

6 reels 62 minutes

Desert Victory is the story of the British Eighth Army's smashing victory at El Alamein and its triumphant advance across the desert to Tripoli. It begins in the grim days when Rommel's Afrika Korps had driven to within 60 miles of Alexandria, and from there follows the Eighth Army, through the suspense just before the zero hour, to the order, "Fire!" The progress and tactics of the battle are described by means of maps and commentary. The cameras move with the advance—Tobruk is re-taken, Benghazi is passed, Rommel fails to make his expected stand at El Agheila, and after 80 days the troops enter Tripoli, 1,300 miles from their starting point.

Special service charge $2.50 first day **Sale $66.50**

The price listed after each film is the sale price

R. A. F.

TARGET FOR TONIGHT

5 reels 48 minutes

An intensely dramatic film of the preparations for and attack by an R.A.F. bomber squadron on an enemy objective and their hair-breadth return to England. This is a very popular film which won the Academy Award for the best documentary film of 1941.

$38.50

AIR OPERATIONS **2 reels 22 minutes**

A shortened version of *Target for Tonight.* **$22.50**

BALLOON SITE 568

See page 13.

FIGHTER PILOT **1 reel 8 minutes**

An account of the work of a typical British fighter pilot waiting call for duty, in actual combat, and returning to his base. **$8.00**

THE PILOT IS SAFE **1 reel 9 minutes**

An episode showing how an R.A.F. man who "ditches" in the sea is saved by his rubber dinghy until he can be picked up by a rescue boat. **$9.50**

R.A.F.—ACTION **1 reel 11 minutes**

A newsreel compilation of the history of the R.A.F. beginning with the Flying Corps in World War I and following up to the victory over the Luftwaffe in the Battle of Britain.

$11.00

ROYAL OBSERVER CORPS

See page 8.

SKY GIANT **1 reel 11 minutes**

The building, testing and flying of the world's biggest bomber and most powerful weapon for night-attack, the Avro Lancaster. Some actual raid material is included.

$11.00

Navy

UP PERISCOPE

2 reels 21 minutes

The story of a British submarine on one of its dangerous patrols in the North Sea, played by men and officers of His Majesty's Submarines.

$23.00

CORVETTES **1 reel 8 minutes**

This film shows the typical work of a Corvette, one of the small ships that escort and protect convoys.

$8.50

H.M. MINELAYER **1 reel 8 minutes**

This film gives an exceptional account of British seamen calmly at work on the risky business of mine-laying just off enemy shores.

$9.00

NAVAL OPERATIONS **1 reel 9 minutes**

By skillful animated maps and diagrams, this film shows the basic strategy of famous naval battles—Bismarck, Graf Spee, Taranto, etc.

$10.00

SEA FORT **1 reel 7 minutes**

Life and work on one of the huge floating fortresses that guard the mouths of British harbors.

$8.00

For loan conditions, see page 4

COME AGAIN

2 reels 18 minutes

Three men return to England after many years away — Stan, an Australian bank clerk turned bomber pilot, Harry, a sailor from Toronto on a corvette, and Fred, a New Zealand soldier.

They look the old country over and find that much has altered in the England they thought unchangeable.

Fred finds the workers in his old factory have much more to say about conditions now; Stan finds his girl in uniform and Harry's old school in the country is in a defense area, the children evacuated and the army in possession. **$18.50**

India

THE CHANGING FACE OF INDIA **1 reel 11 minutes**

This is a film of exceptional photographic beauty, showing how western customs are infiltrating into Indian life. **$12.00**

THE HANDYMEN **1 reel 9 minutes**

Behind the victories won in Africa by Indian troops lies the story of the famous Indian sappers and miners. This film shows how these men are trained to overcome the obstacles of desert warfare. **$10.00**

MADE IN INDIA **1 reel 12 minutes**

This all-Indian picture shows ancient industrial methods in use side by side with modern factories. **$12.50**

Africa

SOUTH AFRICA **1 reel 14 minutes**

This is the first of a series of films dealing with the British Dominions. It describes in detail the natural resources of the country, its fruit industry, its cattle raising, its metal resources, and the life of its people. The film officer describes the modern advances achieved in South Africa in education and industry. It also shows how South African Industry has been geared to the United Nations war effort. **$15.00**

MEN OF AFRICA **2 reels 18 minutes**

A documentary film record and an interpretation of the problems of British Colonial Administration in a section of East Africa. **$18.50**

Malta

MESSAGE FROM MALTA **1 reel 11 minutes**

A spectacular picture of the unbreakable resistance of this little island fortress, which has been the key point, first of defense and later on of attack, in the Mediterranean. **$11.50**

Australia

Films about Australia at war can be obtained from the Australian News and Information Bureau, 610 Fifth Avenue, New York 20, New York.

Canada

Films about Canada at war can be obtained from the National Film Board of Canada, 610 Fifth Avenue, New York 20, New York *or* 84 East Randolph Street, Chicago 1, Illinois.

New Zealand

Films about New Zealand at war can be obtained from the New Zealand Legation, Washington, D. C.

The price listed after each film is the sale price

HOME FRONT

BATTLE OF THE BOOKS
1 reel 8 minutes

This film effectively contrasts the intolerant Nazi attitude towards books and literature with Democracy's attitude.

$8.50

C. E. M. A. **1 reel 14 minutes**

The Council for the Encouragement of Music and the Arts is attempting to bring the best in music, theatre, the graphic arts to the people in wartime, to refresh and encourage them in their fight for a better life. This is an interesting film because its emphasis is on what we fight for rather than what we fight against.

$15.00

CLYDE BUILT **1 reel 11 minutes**

This deals with the shipping industry on the river Clyde, and shows the techniques used in these famous Scottish yards.

$11.50

DOVER **1 reel 10 minutes**

This is a follow-up of *Dover Front Line* in which some of the same people as were shown in the first film are interviewed by Ed Murrow after three years of war. The change in their mood from the courage and patience of a people fighting to defend their homes to that of a people on the offensive is very clear.

$8.50

HEALTH IN WAR
1 reel 14 minutes

Shows the shift from peacetime to wartime organization in hospital, medical and general public health services.

$14.00

LISTEN TO BRITAIN
2 reels 20 minutes

The sights and sounds of a people at war. This film is a poetic presentation of the British people as they are today —working, playing, fighting. There is no dialogue. The audience literally *listens* to Britain.

$16.75

LONDON FIRE RAIDS
1 reel 12 minutes

Made during the fire raid on the City of London the night of December 29, 1940, this film shows one of the biggest blazes in modern history. It is a rare pictorial document of the world's largest city on fire, and gives a vivid idea of what happens when there is concentrated incendiary bombing.

$12.50

NEW TOWNS FOR OLD
1 reel 7 minutes

A citizen of a Northern British town takes a visitor around and shows him some of the bad slums and good housing in his town, and points out that after the war he wants real town planning and decent homes for everyone.

$7.50

ORDINARY PEOPLE
3 reels 30 minutes

A report on the ways, some curious, some funny, some quietly heroic, in which the ordinary people of England adjusted to the disruptions and dangers and tragedies of the blitz. There is a court which recesses to the cellar and continues in session; some scenes in bomb shelters, in department stores and in the homes of bomb victims.

$31.00

OUT OF THE NIGHT
1 reel 11 minutes

Describes the education of the blind in England. An unusual documentary film of exceptional quality.

$12.00

PARTNERS IN CRIME
1 reel 9 minutes

A dramatization aimed at showing the public that resorting to the Black Market, in order to get a little more than the share allowed by rationing, is a crime against the common interest.

$10.00

ROYAL OBSERVER CORPS
1 reel 8 minutes

A description of the work of Britain's civilian corps for air defense—men who take time after their regular jobs to man spotters' posts and identify all aircraft in their area.

$8.50

SWORD OF THE SPIRIT
2 reels 16 minutes

A stirring portrayal of British Catholicism fighting Nazism, including a talk by the late Cardinal Hinsley, founder of the movement of the Sword of the Spirit.

$16.50

For loan conditions, see page 4

INDUSTRIAL FRONT

ARMS FROM SCRAP
1 reel 8 minutes

From the blitzed towns have been salvaged great quantities of steel for munitions. The film shows this work being done and appeals to everyone to help in collecting every bit of scrap metal to be turned into ships, guns and tanks.
$8.50

EATING AT WORK
1 reel 13 minutes

Rationing, overtime, night shifts and housewives at work make it more and more difficult for workers to get adequate meals. Factory canteens properly managed by nutritionists aware of the food requirements of working men and women are the obvious answer. This film shows how one such canteen is run and with what benefit to the workers.
$13.00

JANE BROWN CHANGES HER JOB
See page 13.

NIGHT SHIFT
See page 13.

TRANSFER OF SKILL
• **1 reel 10 minutes**

This film shows how British craftsmen have translated their skills into wartime jobs. **$11.00**

WARTIME FACTORY
1 reel 10 minutes

A message of increasing importance on the industrial front: the importance of the health and well-being of the individual worker who converts raw materials into the machines of war. The film shows how a factory is operated to give the workers as much relaxation and physical protection as the difficult conditions of war production will allow.
$10.50

WELFARE OF THE WORKERS
1 reel 9 minutes

This is an earlier film than *Wartime Factory* on the same general subject, dealing with some of the benefits the Trade Unions have secured for British workers. Ernest Bevin, Minister of Labour, is seen and heard appealing for an all-out effort. **$10.00**

KNOW YOUR ALLY BRITAIN
5 reels 42 minutes

This film was made by the United States Army Special Services Division as one of a series on the United Nations. It depicts what life is like in Britain, for the benefit of U. S. soldiers who might be going there on their way to other theatres of war. The film is not only a good description of how Britain looks and conducts her business; it also gives a hint of how Britain got that way.

This film is one in the well known series *Why We Fight,* made by the U. S. Army Special Services Division as part of the U. S. Army Orientation Training Scheme. It describes the importance of the British stand during the Battle of Britain, and covers the whole strategy of that period of the war.

6 reels 53 minutes
THE BATTLE OF BRITAIN

Prints of both subjects on loan only; not for sale.

The price listed after each film is the sale price

FEATURE

SILENT VILLAGE

A Crown Film Unit Production
Made with the cooperation of the
Czechoslovak Ministry of Foreign Affairs and
the South Wales Miners Federation

This film, which re-enacts the story of Lidice was made by the people of Cwmgiedd, a mining village in South Wales, whose peacetime life was very similar to that of the people of the Czech village. No attempt is made to reconstruct the realism of the Nazi attack on Lidice. Rather do we see the effect of the attack on the life of the village, and it is natural that the Welsh miner should imagine that effect and portray it in terms of the life of his own Cwmgiedd. Throughout the film the people of Cwmgiedd, therefore, continue to speak their Welsh language, wear their own clothes, and sing their own Welsh songs.

The final significance of the film is that Lidice still lives in the minds of men, and that freedom can always be maintained so long as there are people with conviction enough to die for freedom.

4 reels 35 minutes **$36.00**

WORLD OF

A Paul Rotha

WORLD OF PLENTY is an ori
film technique to explain to the pub
lems about which common people as
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Its subject is food—the productio
and waste in peacetime, the control
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on duty. The camera picks them u
Narrators, English and American,
nents, asking and answering as the

There is a vivid and often dra
which clarifies the argument and il

5 reels 45 minutes

TANK P

Out on a desert patrol, a British t
The radio and the "intercom" break d
gunner is wounded. Completely lost, t
a cave until the morning. Then, by a c
steals gas from the camp of the surro
comes, the tank is able to make a da
enemy lines to rejoin the main part

4 reels 37 minutes

I WAS A

A Crown Film U

A dramatic reconstruction of an episode from the nights of 1940, when the Luftwaffe vainly strove to break civilian morale in Britain. All the principal characters were played by actual members of the National Fire Service and the film is a tribute to this body, which was specially formed, before the war, to counter incendiary warfare.

The fire scenes, realistic in the extreme, reveal just what it means to combat raging night fires, while high explosives and fresh incendiaries

4 reels 39 minutes

For loan conditions, see page 4

E FILMS

F PLENTY

ha Production

riginal documentary using modern
ublic one of the great world prob-
as well as statesmen must be com-

tion of food, its uneven distribution
ol made necessary by war, and the
war. Facts and arguments are
eye as well as to the mind, so that
ating inexorably the case for world
es and docks tie the arguments to

ght have elaborated a number of
Not only do they interview experts,
de R. Wickard, Wellington Koo, etc.,
a middle-west farmer, a policeman
up and they talk out of the screen.
, swing the argument across conti-
ey go.
amatic use of maps and diagrams,
illuminates the facts.

$47.00

ATROL

tank gets into a scrap with the enemy.
down, the gas gives out and the front
the crew is forced to hide the tank in
clever ruse, the sergeant in command
rounding Italians. And when daylight
dash for safety, breaking through the
of the British Eighth Army.

$39.50

BEFORE THE RAID

A Crown Film Unit Production
Made with the full cooperation of the
Norwegian Government

A rousing film, enacting in dramatic form the story of a fishing village in occupied Norway. The people endure, with growing resentment, the insolence of the Nazis and the local Quisling, who seize their catch and keep them in semi-starvation. At last there is an outburst, and after this it is decreed that fishing will be carried on "under strictest military supervision."

Next day, the little fleet sails out into the fjord, followed by an escort motor boat. Suddenly, the fishermen turn on their guard, pitting against the Nazi rifles their skill in sailing. The escort boat is rammed and the Nazis are overpowered. The boats sail at full speed for Britain.

Enacted by Norwegian fishermen who had indeed escaped to Britain, the film has an authentic quality.

4 reels 36 minutes **$38.00**

FIREMAN

Unit Production

rain down into the midst of the flames. One of the most moving moments in the film is the early morning scene, when the population wave greetings to the firemen, dead-tired and black-streaked with smoke, sweat and water, as they return to their station. These scenes were taken in Stepney, London, one of the most severely blitzed areas in the country, and the people greeting the firemen had actually experienced many such a night and morning. There is not a professional film actor in the whole film.

$41.00

The price listed after each film is the sale price

FARM FRONT

DIG FOR VICTORY

1 reel 7 minutes

An instructive appeal to everyone to get a piece of land and grow vegetables to relieve the food shortage. Gardening, from spading the ground through planting, weeding, transplanting and gathering the grown vegetables, is demonstrated by a master of the craft. **$7.50**

SALUTE TO FARMERS

2 reels 15 minutes

A comprehensive picture of the farmer's part in winning the war, summarizing the contributions of all the various branches of agriculture.

$16.00

THE FARMER'S YEAR

These four films, which make a complete cycle, illustrate the work of British farmers throughout the year. They show farms of various kinds, situated in different parts of Britain, but all directed to one end: the maximum production of food for the British people and the thousands of members of the United Nations who live in wartime Britain.

WINTER ON THE FARM

2 reels 16 minutes

On a five-hundred acre mixed farm, the people are at work in all kinds of weather, plowing and manuring, repairing the hedges, clearing the ditches, thrashing the grain, feeding the dairy herd and taking care of the new-born lambs.

$16.50

SPRING ON THE FARM

2 reels 15 minutes

On a farm in another area, the farmer, his men and the landgirls are plowing, harrowing, fertilizing and planting every hour of the day, and even through the night. The assistance given farmers by the local agricultural research stations is brought out in this film.

$16.00

SUMMER ON THE FARM

1 reel 13 minutes

This picture of a north-country farm around haytime stresses the interdependence of town and country. While vegetables and milk go to the city markets and wool to the factories, townsfolk form voluntary land clubs to help with the hoeing, weeding, potato-picking and the gathering-in of fruit and vegetables. **$13.00**

THE CROWN OF THE YEAR

2 reels 21 minutes

The agricultural cycle is completed with the harvesting of the grain and the lifting of the root crops. But already the farmer is planning the best disposition of his acres for the coming year, so that next autumn he may again reap a bumper crop to feed the nation at war. **$21.50**

THE GREAT HARVEST

1 reel 7 minutes

This film is a topical sequel to the four seasonal films described above. It shows the participation of the civilian public in bringing in the record harvest which was the result of the intensive effort of the British farmer to produce a bumper crop.

$8.00

For loan conditions, see page 4

WOMEN IN WAR

NIGHT SHIFT **1 reel 10 minutes**

In England, women are working in war industries as much as men. They are on night as well as day shifts. This is an impression of one night in an arms factory where most of the employees are women.

$10.00

BALLOON SITE 568
1 reel 9 minutes

This film shows women from widely different occupations learning to become barrage balloon operators.

$9.50

JANE BROWN CHANGES HER JOB
1 reel 9 minutes

A clerical worker decides she will be more useful to the war effort in a war factory. She goes to a Government Training Center and when she has completed her course, gets a job in an aircraft assembly plant.

$9.00

SHE SERVES ABROAD
1 reel 8 minutes

The women of the Middle Eastern forces — W.R.N.S., W.A.A.F., A.T.S., ambulance drivers, nurses — who serve in equal partnership alongside the fighting men.

$8.50

WOMEN AT WAR
1 reel 11 minutes

The many jobs women are doing in wartime Britain, introduced by Ambassador Winant.

$11.00

A LETTER FROM IRELAND

2 reels 24 minutes

Depicts the every-day happenings at an American army camp in Northern Ireland as seen through the eyes of two soldier brothers, who, having neglected to write home, are ordered to compose a ten page letter between them.

The film shows the American boys arriving at the camp being greeted by the British soldiers who have made ready the Nissen huts. Then we see them go through a stiff bout of Commando training, and follow the two brothers on their first 48-hour leave.

$23.50

The price listed after each film is the sale price

ANTI-GOSSIP FILMS

ALL HANDS **1 reel 12 minutes**

A sailor in a cafe tells his girl when his ship is due to leave. The information is passed on step by step until it is sent by spies to the German Admiralty, and the U-boat commander gets his orders. The ship is sunk with all hands lost.

$12.00

DANGEROUS COMMENT **1 reel 13 minutes**

A young pilot, annoyed at not being sent on an important raid, tells his fiancee, who tells a friend, who chatters at a cocktail bar. The bartender is a spy and he passes the word on to Nazi agents. The raid is called off just in time, as the British Bomber Command gets wind that the Nazis know its plans.

$13.00

NOW YOU'RE TALKING **1 reel 12 minutes**

A worker at a Government research station lets out the news that they are receiving a salvaged German plane, and that night the research station is blown up.

$12.50

YOUTH AND EDUCATION

VENTURE ADVENTURE

1 reel 8 minutes

Very lively picture of the R.A.F. training available to boys of fourteen to eighteen in the Air Training Corps.

$8.50

YOUNG FARMERS

2 reels 15 minutes

A class of country-town schoolchildren, who have formed a Young Farmers' Club, study the geography of their own locality, and then make a bicycle trip to a rural village where a similar Club shows them the real practice of farming.

$16.00

FIVE AND UNDER

2 reels 17 minutes

Discusses the problems of caring for small children in nursery schools while mothers are working in war factories.

$18.00

TOMORROW IS THEIRS

1 reel 10 minutes

Since the beginning of the war, Britain has removed as many schools as possible from the cities to the country, but a great many children remain in the city. Education has to be provided wherever they are. This film shows a school of each kind, and discusses some of the problems of reorganization this has required.

$10.50

VILLAGE SCHOOL

1 reel 12 minutes

This vivid film deals with life in a village school, under the double impact of evacuation and the general war situation. *Village School* concentrates on the viewpoint of the teacher, who commentates and appears in the film.

$12.00

MEN OF TOMORROW 1 reel 10 minutes

What the Boy Scouts are doing in wartime Britain: rescue work, fire fighting, teaching the Home Guard tracking and map reading, helping on the farms, and so on. This is a lively film, of especial interest to U. S. Scout troops.

$11.00

For loan conditions, see page 4

BRITISH FILM MAGAZINE

No. 1

GOOD NEWS FOR SPIDERS
Spiders spin threads for gunsights.

BASES FOR BOMBERS
Bomber runways out of mud flats.

ANCIENT CRAFT JOINS WAR FRONT
Charcoal burners become essential war producers.

1 reel **8 minutes** **$9.00**

No. 2

SCIENCE VERSUS SAND
How filters help planes and tanks fight desert warfare.

FACTORY FRONT
Housewives in part time factory jobs help speed production.

TUGBOAT ANNIE
A famous Hollywood property turned into a weapon of war.

1 reel **8 minutes** **$9.00**

No. 3

CAMOUFLAGE
Fisher folk make nets to hide.

FOOD FRONT
Priority treatment for women war workers at the stores.

TURN AROUND
Dock workers speed up for victory.

1 reel **8 minutes** **$9.00**

No. 4

PLY IN THE SKY
How the world's fastest plane, the Mosquito, is made.

A CAUTIONARY TALE
A cartoon warning of the danger of neglecting minor costs.

PROPS
Felling trees for pit props.

1 reel **9 minutes** **$10.00**

No. 5

DIAMOND CUT DIAMOND
British girls making diamond dies for drawing very fine wire.

SONG OF THE ISLANDS
A West Indian broadcast from a London studio.

SHOWDOWN
How anti-tank mine detectors are made.

1 reel **10 minutes** **$11.00**

The price listed after each film is the sale price

SPECIAL FILMS

In addition to the films described in this general list, others of more specialized interest are also available.

FILMS ON NUTRITION AND RATIONING

FILMS ON AIR RAID PROTECTION

FILMS ON FARMING AND GARDENING

FILMS ON HEALTH AND MEDICINE

SCIENCE FILMS

FILMS ON PRE-WAR BRITAIN

Also

UNITED NATIONS FILMS

The lists of these special films may be obtained from the depositories listed on page 19 from which the films can also be obtained on giving not less than two weeks' notice.

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ALL THE FILMS IN THIS GENERAL LIST ARE AVAILABLE FROM THE FOLLOWING DEPOSITORIES:

Regional Depositories

Washington, D. C.

The Film Officer,
British Information Services,
1336 New York Ave., N. W., Washington 5, D. C.
Tel. Executive 8525

Chicago, Illinois

The Film Officer,
British Information Services,
360 North Michigan Avenue, Chicago 1, Ill.
Tel. Andover 1733

San Francisco, California

The Film Officer,
British Information Services,
260 California Street, San Francisco 11, Calif.
Tel. Sutter 6634

Hollywood, California

The Film Officer,
British Information Services,
1005 Taft Building, 1680 North Vine St., Hollywood 28, Calif.
Tel. Hollywood 1634

New Orleans, Louisiana

The Film Officer,
British Information Services,
1238 Canal Building, New Orleans 12, La.
Tel. Magnolia 4080

Central Depository

New York, N. Y.

Film Division,
British Information Services,
30 Rockefeller Plaza,
New York 20, N. Y.
Tel. CIrcle 6-5100

THE FILMS ARE ALSO OBTAINABLE FROM THE BRITISH CONSULAR OFFICES AT:

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Detroit, Mich.
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Pittsburgh, Pa.
Portland, Ore.
St. Louis, Mo.
St. Paul, Minn.
Seattle, Wash.
Spokane, Wash.

FILMS OF BRITAIN AT WAR

16 MM SOUND

BRITISH INFORMATION SERVICES

493

FILM DIVISION
BRITISH INFORMATION SERVICES
1336 NEW YORK AVENUE, N.W.
WASHINGTON 5, D. C.

Date____________________

Please send 16 mm. prints of the films named below to

(Name)______________________________

(Address)______________________________

______________________________ 'Phone____________

for showing on______________________________

FILM TITLES

1ST CHOICE	ALTERNATIVES

I accept the conditions of loan and agree to pay the service and transportation charges, C.O.D.

Signed______________________________

Address______________________________
(IF DIFFERENT FROM ABOVE)

____

Sponsoring Organization______________________________

14 2-44

FILMS

about FARMERS

for FARMERS

for GARDENERS

16mm Sound Films of BRITAIN AT WAR

This leaflet is published by British Information Services, New York, N. Y.

AGRICULT

THE HARVEST SHALL COME
4 reels 36 minutes

The story of Britain's agriculture from 1900 to the present, told through the life of a farm worker. It is a story of changing conditions through two world wars—plenty of work and wages for farm hands in wartime, but hardship in peace when the bulk of the nation's food can be imported. The film's particular interest lies in the importance given to the realization today of the need for a planned programme of better conditions when peace comes again. **$37.50**

HOW TO GARDEN

DIG FOR VICTORY **1 reel 7 minutes**
An instructive appeal to everyone to get a piece of land and grow vegetables to relieve the food shortage. Gardening, from spading the ground through planting, weeding, transplanting and gathering the grown vegetables, is demonstrated by a master of the craft. **$7.50**

HOW TO DIG **2 reels 17 minutes**
The first of a series of instructional films on gardening. Demonstrates the best methods of breaking up new ground and dealing with established plots. The methods shown are double digging on grassland, double digging on cultivated ground, and simple digging. **$17.50**

SOWING AND PLANTING **1 reel 13 minutes**
Instructions for the best results in planting onions, peas, Brussels sprouts, cabbages, potatoes. A sequel to *How to Dig*. **$13.00**

CULTIVATION **1 reel 12 minutes**
This film describes the care of the growing plant, and shows the cultivation techniques to be employed in the average victory garden. **$12.50**

STORING VEGETABLES INDOORS **1 reel 13 minutes**
How to store shallots, runner beans, onions, haricot beans and tomatoes. **$13.50**

STORING VEGETABLES OUTDOORS **1 reel 9 minutes**
How to store potatoes and carrots outdoors, and the technique of straw thatching. **$9.50**

SIMPLE FRUIT PRUNING **2 reels 20 minutes**
A concise but detailed account of the art of pruning fruit trees. **$21.50**

PROTECTION OF FRUIT **2 reels 19 minutes**
The story of cooperation between entomologists, chemists and farmers in controlling and destroying insects and diseases which ruin fruit. **$20.00**

HO

CLEAN MILK

A painstaking acco
both in the care of
farm utensils, for t
of purity. Made for

DITCHING

Instructs English f
various types of la

HEDGING

Instructional film on
used in England in
feature of the Briti
the prevention of s
refuges.

HOW TO THATCH

A veteran thatcher
preserve stacks aga

MAKING GOOD H

Shows the farmer h
how to prepare and

RE-SEEDING FOR

Shows how farmer
pastureland by the
old land.

SILAGE

An instructional fil
use silage for wint
of imported feed.

A WAY TO PLOW

Demonstrates clear
nomical way to plo

The price listed after each film is the sale price

TURE

OW TO FARM

2 reels 16 minutes

ccount of the scrupulous methods necessary,
f the herd and the cleansing of buildings and
r the production of milk of the highest grade
for the British Ministry of Agriculture.

$17.00

1 reel 11 minutes

farmers in the correct methods of draining
land.

$11.00

1 reel 10 minutes

on methods of laying hedges, which are widely
n place of fences. Hedges are a characteristic
itish countryside and are proving valuable in
soil loss through wind erosion, and as bird

$10.00

CH **1 reel 12 minutes**

er shows how to thatch properly in order to
gainst winter weather.

$12.50

HAY **1 reel 9 minutes**

r how to get the best crop from his land, and
nd preserve his hay.

$10.50

R BETTER GRASS **1 reel 11 minutes**

ners can turn rough weedy fields into good
ne ploughing, fertilizing and re-seeding of the

$11.50

1 reel 12 minutes

ilm for British farmers on how to prepare and
nter cattle feeding, to make up for shortages

$13.00

W **2 reels 17 minutes**

arly in picture and diagram one proved, eco-
low, which saves time, labor and fuel.

$17.50

FILMS ABOUT FARMERS

FIGHTING FIELDS

1 reel 12 minutes

This film spotlights Scotland's agricultural part in winning the war.

$12.00

NEW ACRES **1 reel 9 minutes**

A film which campaigns for more intensive farming of Britain's unused land. It shows the reclaiming and tilling of hitherto derelict land.

$9.50

SALUTE TO FARMERS

2 reels 15 minutes

A comprehensive picture of the farmer's part in winning the war, summarizing the contributions of all the various branches of agriculture.

$16.00

TURN OF THE FURROW

2 reels 21 minutes

Shows the use of various types of agricultural tractors and indicates their value for both large and small farms.

$21.50

YOUNG FARMERS

2 reels 15 minutes

A class of country-town school children, who have formed a Young Farmers' Club, study the geography of their own locality, and then make a bicycle trip to a rural village where a similar Club shows them the real practice of farming.

$16.00

KILL THAT RAT

1 reel 10 minutes

An unusually vivid instructional film explaining the great damage rodents inflict upon British agriculture every year and methods of exterminating them.

$10.50

For loan conditions see general list

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An agency of the British Government

PRINTED IN U. S. A. 493

16 MM SOUND
FILMS OF
BRITAIN AT WAR

HEALTH AND MEDICINE

1944

This leaflet is published by
British Information Services, New York, N. Y.

HEALTH AND

ACTION 1 reel 9 minutes

Play more and work better. Some of the games that provide training and exercise in the discipline, strength and alertness required in wartime.

$9.50

HEALTH IN WAR 1 reel 14 minutes

Shows the shift from peacetime to wartime organization in hospital, medical and general public health services.

$14.00

LIFE BEGINS AGAIN 2 reels 21 minutes

An account of new methods of rehabilitation for men injured in industry or in the Forces. The most advanced medical treatment, planned physical exercise and freedom from worry about the future are essential if injured men are to be restored to confidence in themselves, as well as to physical health.

$21.50

MALARIA 3 reels About 30 minutes

A study of the disease, how it is carried by mosquitoes and how it may be controlled by the spraying of swamps which are the carriers' breeding grounds. Microphotography shows the mosquito's part in the astonishing cycle of events.

PSYCH
IN AC

This film was made at a sp
Emergency Medical Servic
of Health for the treatmen

The story is a detailed ac
tion of the hospital, starti
the patients and the metho
kind of case. It then sh
treatments given, the work
the occupational therapy,
of what is done about t
the disposal and after care
are ready to leave.

7 reels 62 minutes

BLOOD TRANSFUSION 4 reels 39 minutes

A survey of blood transfusion, its development in international medical history, and its present wartime techniques. It traces the development and present operation of the blood donor system in England and appeals to everyone to give blood to save the lives of others. The film is suitable for professional and lay groups, especially those having a particular interest in volunteer blood banks.

$41.00

The price listed after each film is the sale price

D MEDICINE

HIATRY
CTION

special centre set up by the
vice of the British Ministry
ent of war neuroses.

account of the administra-
rting with the admission of
hods of investigation of each
shows some of the special
rk of physical rehabilitation,
, and ends with an account
the important problem of
re of the patients when they

$67.50

MEN IN DANGER **2 reels 19 minutes**

This is an exceptionally interesting film on the worker's health and safety. It deals with serious types of industrial accidents and some of the major occupational diseases.

$19.50

NO ACCIDENTS **1 reel 10 minutes**

A recent film emphasizing the importance of routine observance of safety precautions in factories, especially now when work is speeded up and many new people are on the jobs. Some specific safety suggestions are made as to dress and work habits.

$10.50

PLASTIC SURGERY IN WARTIME
(Technicolor) **3 reels 27 minutes**

This is a lecture film made by the famous plastic surgeon, Sir Harold Gillies, who appears in the film and speaks the introduction. Some striking cases are shown. Accounts are then given by the patients themselves of how they were mutilated in raids, and the treatment they are now undergoing. The film is available to professional groups only. Application should be made in writing to the British Information Services in New York for the use of this film.

RAT DESTRUCTION **1 reel 10 minutes**

How to deal with the menace of urban rats, especially in relation to food storage in wartime.

$11.00

SCABIES **4 reels 37 minutes**

A copiously illustrated study of the disease popularly known as "The Itch", showing how it is caused by a minute creature which burrows under the skin, and how simply and quickly it may be cured. Made for wartime use in Britain.

$38.50

WHITE BATTLE FRONT **1 reel 11 minutes**

Shows the health front in the laboratory and in the field, and medical science made available to the fighting forces through the Red Cross and the Royal Army Medical Corps.

$11.00

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Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
St. Louis, Mo.
St. Paul, Minn.
Seattle, Wash.
Spokane, Wash.

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An agency of the British Government

PRINTED IN U. S. A. 495

UNITED NATIONS

16 MM SOUND

FILMS

These are films about the United Nations which the British Ministry of Information made available in Britain. Other United Nations films can be obtained from the Information Services of the various countries. A complete United Nations catalogue is available from UNIO, 610 Fifth Avenue, New York 20, N. Y.

1944

This leaflet is published by British Information Services, New York, N. Y.

RETURN OF AN EMPEROR 1 reel 9 minutes

Ethiopia was the first to fall in this great world war, and the first to be restored. The film shows the Emperor, Haile Selassie, returning to his people; and the heroic guerilla fighters who greet him.

$10.00

SOVIET SCHOOL CHILD 2 reels 25 minutes

Education in the U.S.S.R. from nursery through high school. Much interesting material on various youth activities both in and out of school.

$25.50

TALE OF TWO CITIES 1 reel 8 minutes

London and Moscow are two cities which have had to fight with all their resources of manpower and nerve against the blitz attacks of the enemy. The film shows how each city stood up to and turned back the Luftwaffe.

$8.50

THIS IS POLAND 2 reels 21 minutes

Pre-war Poland—her people, architecture, customs. The German invasion and devastation, and the eventual liberation of the country as envisaged by her citizens in exile.

$22.00

WHITE EAGLE 3 reels 27 minutes

The story of the life of Polish men, women and children exiled in Britain, told by the late Leslie Howard.

$28.50

DIARY OF A POLISH AIRMAN 1 reel 8 minutes

The story of a Polish flyer fighting for the liberation of his country with a Polish squadron in England. The story is reconstructed from his diary after he has been killed in action.

$8.50

ONE HUNDRED MILLION WOMEN 1 reel 9 minutes

All the women of Russia, from youth to old age, are helping to defend their fatherland from the enemy. There are scenes of women operating trains, steamshovels, and subways; running tractors and nurseries; carrying arms in actual battle and nursing at the front.

$9.00

NATIONS WITHIN A NATION 2 reels 16 minutes

Britain since 1940 has given asylum to large numbers of exiles from the over-run countries. Nine European governments have their headquarters in London and many groups of exiles carry on their national life, and even maintain some of their national institutions, in Britain.

$17.50

TWO FEATURE FILMS

SILENT VILLAGE

A Crown Film Unit Production

Produced with the cooperation of the Czechoslovak Ministry of Foreign Affairs and the South Wales Miners Federation

This film, which re-enacts the story of Lidice, was made by the people of Cwmgiedd, a mining village in South Wales, whose peacetime life was very similar to that of the people of the Czech village. No attempt is made to reconstruct the realism of the Nazi attack on Lidice. Rather do we see the effect of the attack on the life of the village, and it is natural that the Welsh miner should imagine that effect and portray it in terms of the life of his own Cwmgiedd. Throughout the film the people of Cwmgiedd, therefore, continue to speak their Welsh language, wear their own clothes, and sing their own Welsh songs.

The final significance of the film is that Lidice still lives in the minds of men, and that freedom can always be maintained so long as there are people with conviction enough to die for freedom.

4 reels 35 minutes **$36.00**

BEFORE THE RAID

A Crown Film Unit Production

Produced with the full cooperation of the Norwegian Government

A rousing film, enacting in dramatic form the story of a fishing village in occupied Norway. The people endure, with growing resentment, the insolence of the Nazis and the local Quisling, who seize their catch and keep them in semi-starvation. At last there is an outburst, and after this it is decreed that fishing will be carried on "under strictest military supervision".

Next day, the little fleet sails out into the fjord, followed by an escort motor boat. Suddenly the fishermen turn on their guard, pitting against the Nazi rifles their skill in sailing. The escort boat is rammed and the Nazis are overpowered. The boats sail at full speed for Britain.

Enacted by Norwegian fishermen who had indeed escaped to Britain, the film has an authentic quality.

4 reels 36 minutes **$38.00**

ALL THE FILMS IN THIS SPECIAL LIST ARE AVAILABLE FROM THE FOLLOWING DEPOSITORIES ON GIVING AT LEAST TWO WEEKS' NOTICE:

Regional Depositories

Washington, D. C.
The Film Officer,
British Information Services,
1336 New York Ave., N.W., Washington 5, D. C.
Tel. Executive 8525

Chicago, Illinois
The Film Officer,
British Information Services,
360 North Michigan Ave., Chicago 1, Ill.
Tel. Andover 1733

San Francisco, California
The Film Officer,
British Information Services,
260 California Street, San Francisco 11, Calif.
Tel. Sutter 6634

Hollywood, California
The Film Officer,
British Information Services,
1005 Taft Building, 1680 North Vine St., Hollywood 28, Calif.
Tel. Hollywood 1634

New Orleans, Louisiana
The Film Officer,
British Information Services,
1238 Canal Building, New Orleans 12, La.
Tel. Magnolia 4080

Central Depository

New York, N. Y.
Film Division,
British Information Services,
30 Rockefeller Plaza,
New York 20, N. Y.
Tel. CIrcle 6-5100

THE FILMS ARE ALSO OBTAINABLE FROM THE BRITISH CONSULAR OFFICES AT:

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Baltimore, Md.
Boston, Mass.
Cincinnati, Ohio
Cleveland, Ohio
Denver, Colo.
Detroit, Mich.
Houston, Tex.
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St. Louis, Mo.
St. Paul, Minn.
Seattle, Wash.
Spokane, Wash.

BRITISH INFORMATION SERVICES

An Agency of the British Government

PRINTED IN U. S. A. 495

16 MM FILMS OF BRITAIN AT WAR

September, 1943

SIX SCIENCE FILMS

Note: The following films will be of interest to general audiences, but their chief value is for students of physics and engineering, and for pre-aviation and pre-military engineering classes.

The descriptions of the films were written by an instructor in physical science in an American high school.

AIRSCREW **2 reels 22 minutes**

Airscrew opens with whirring propeller blades. Animated diagrams then show how the bite of the propeller moves it through the air and how the pitch determines the size of the bite.

A trip through an airplane factory follows, and the manufacture of airscrews is shown in every detail. Photomicrographs show the difference between a poor and a satisfactory alloy. The rough casting is turned on a lathe. The rest of the process is painstaking hand work interspersed with dozens of careful inspections. The propeller is then dyed and is ready for assembling. The operation of the variable pitch mechanism is clearly shown as well as its use in taking off and cruising. This is one of the least understood and most interesting aspects of flying. When the propeller is assembled the complete job is tested for a balance so fine that a calling card placed on one of the blades will cause the whole propeller to turn.

$22.50

DISTILLATION **1 reel 13 minutes**

A laboratory demonstration shows how a solid and two liquids having different boiling points may be separated by fractional distillation. Animated diagrams show how carbon and hydrogen atoms combine to form chains, rings, and combinations of both. Petroleum is shown to be a complex mixture of many of these molecules, each with its particular boiling point.

How these various ingredients of crude petroleum may therefore be separated by boiling is shown by means of diagrams and photographs.

The film shows the working of one of the early stills and explains the advantages of the more complex modern still. Crude petroleum is vaporized, the vapor ascending through various temperatures where each product is condensed and run off until the top of the still is reached. At the lowest boiling point gasoline is condensed.

A final shot shows the many familiar products of crude petroleum being drawn from the still ready for distribution to the consumer.

$14.00

HYDRAULICS 1 reel 13 minutes

Liquids are inelastic, and cannot be compressed. They assume the shape of solids and are controlled by them. This makes possible the tremendous power exerted by liquids when confined by solids. A laboratory experimenter exerts great pressure on the cork of a bottle containing a liquid. The bottle is shattered. But if there are two openings and two corks the bottle does not break: one cork is merely pushed out when the other is depressed. Thus is power transmitted through confined liquids. In this simple way the subject of hydraulics is introduced.

Leaving the laboratory the film shows numerous applications of this principle. The use of hydraulic power in opening the bomb bay of a fighting plane is depicted; also how it is used to operate the wing flaps in landing. The use of hydraulics in the modern automobile is pictured, showing how great power is transmitted to the brake drums from a light touch of the foot on the pedal. By means of hydraulic power factory windows are controlled, and elevators carrying hundreds of pounds are operated. Throughout the picture it is constantly emphasized that all of this is made possible by the inelasticity of liquids.

$13.50

OIL FROM THE EARTH 2 reels 20 minutes

This film dramatically portrays the story of crude oil and its finished products, from its formation millions of years ago to its distribution to all parts of the world. Geologists are shown prospecting for oil in barren deserts and almost impenetrable jungles. Animated diagrams and pictures of early forms of life show how oil was formed and how it became embedded deep under many strata of the earth's surface. A drilling machine is shown in operation. The bits are changed and the reason for their use is shown. Tests are made to determine what particular stratum has been reached. Casings are placed down the side of the well, and a stream of mud forces out the borings.

When the oil is reached, the film shows the laying of miles of pipes over plain and mountain, by means of which the oil at last reaches the distillery, where it is made into commercial products. The film ends with tankers sailing the seven seas.

$21.00

SPRINGS 1 reel 13 minutes

How does a spring protect a car from road shocks? Which is better, a long flexible spring or a short stiff one? This film answers these questions. It demonstrates the principle upon which all springs operate, and shows their actual manufacture. Animated diagrams show the difference in action between the short and long spring on a car and the advantage of each. The compromise necessary to get best results is shown in shots of a car wheel traveling over a rough road at high speed. We now see the action of the shock absorber. This is merely a "stiff elbow." Various types are shown and their uses on modern automobiles explained. We see the actual working of both the friction type and the hydraulic type. A car is stopped suddenly, throwing the weight forward; and started suddenly, throwing the weight to the rear. A final drive shows how springs take the weight as the car rocks from side to side.

$13.00

TRANSFER OF POWER 2 reels 22 minutes

A girl pumping water is using a simple lever. The most primitive lever is the crowbar. The film opens with the modern and ancient uses of both these methods of transferring power. Animated diagrams explain the principle of leverage. The application of this principle to the geared wheel is illustrated in the use of a primitive wooden wheel powered by an ox. The use of wind power to drive a geared wheel is next depicted; also the transforming of water power to mechanical power by means of a geared water wheel.

Metal geared wheels made high-powered steam engines possible. Animated diagrams reveal the principles involved in the design of the gears used. Modern applications of the use of geared wheels to transmit power are shown, ranging from wheels weighing tons to those used in the transmission of the modern automobile.

$22.50

FOR YOUR INFORMATION—

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The Film Officer,
British Information Services,
260 California Street, San Francisco 11, Calif.
Tel. Sutter 6634

Los Angeles, California
The Film Officer,
British Information Services,
448 South Hill St., Los Angeles 13, Calif.
Tel. Vandike 3171

New Orleans, Louisiana
The Film Officer,
British Information Services,
1238 Canal Building, New Orleans 12, La.
Tel. Magnolia 4080

Central Depository

New York, N. Y.
Film Division,
British Information Services,
30 Rockefeller Plaza,
New York 20, N. Y.
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Denver, Colo.
Detroit, Mich.
Houston, Tex.
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Philadelphia, Pa.
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Portland, Ore.
St. Louis, Mo.
St. Paul, Minn.
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Please file

LABOR ON THE WAR FRONT

A PROGRAM OF BRITISH FILMS

The Department of Labor has been fortunate in securing the cooperation of the Film Division of the British Information Services in presenting to the employees of the Department a series of short films illustrating the contribution of British Labor to the war effort.

The first presentation of some of these films will take place on Monday, December 7, at 4:00 p.m., in the Departmental Auditorium. All employees of the Department are invited to attend and those who do will be given official leave for that purpose. The program will last for slightly more than one hour, and will include the following:

BEHIND THE GUNS	A tribute to the workers in steel and armament factories	(21 minutes)
JANE BROWN CHANGES HER JOB	Depicts training of women for engineering work	(9 minutes)
NIGHT SHIFT	A Government ordnance factory on the night shift	(14 minutes)
BUILDERS	Dramatized impression of men at work on the site of a new munitions factory	(8 minutes)
WARTIME FACTORY	Health and welfare work in war factories	(10 minutes)

(S 42-573)

NATIONAL FILM BOARD

FIGHTING FILMS

Vol. 2 No. 4
PROGRAM D

SOMETHING NEW HAS BEEN ADDED . . .

IT'S ALL IN LINE with our purpose to bring to Industrial Circuits audiences the type of films they want. In the planning of our monthly programs it has been necessary to keep in mind an important and obvious fact—we have a national taste to satisfy, a taste that streches from the mining towns of the Maritimes all the way to the lumber camps of British Columbia. Quite a little jaunt, you'll agree. And to this end, we have, with your help, organized our programs to appeal to the greatest numbers everywhere. We call them our basic programs.

But fairly often requests reach the Industrial Circuits offices asking for films more specifically related to the needs of individual industries. The new departure in the operation of the Circuits will, in future, take ample care of just such requests. Discussed in greater detail on the back page of this issue, the plan is to make available to any particular plant any special films of interest to supplement the basic programs. These additional pictures may be shown at the conclusion of the regular screenings or at a later date, depending upon the projectionist being able to adjust them into the normal timetable for his Circuit.

At the present time a complete list of films that will be made available under this plan is being compiled. The list, when ready, will be issued for your examination.

The projectionist visiting your plant will be able to supply you with a good deal of the more practical details . . . the 'hows' and the 'wheres' and the 'whens' of distribution and screenings. Or else, if you wish, just drop us a line.

And that's what's been added that's new. For Industrial Circuits it represents an important development. For audiences it means an important extension of the general service. Which is all to the good.

the projectionist is there to serve you

HE'S the man who brings the Industrial Circuits film programs around to your plant every month. An expert in his field, he's the man responsible for assuring you the best possible presentation, the top-notch service you have come to want on your regular monthly screenings.

We want you to get to know these men because they're more than projectionists. They are in a sense, the personal liaison between your particular firm and the National Film Board. They're the ones to whom you can bring your film problems directly.

Each of them has come to know his own field thoroughly. Operating an Industrial Circuit, one gets to know exactly the conditions under which showings must be given, the problems that sometimes lie in the presentation of a first rate screening. And where these difficulties exist, they are anxious to do what they can, to see they are eliminated.

From time to time we shall be printing group pictures of these men — your projectionists. In concise captions we will give you some information about the general field each covers, give you, in a sense, the broader knowledge of their work. You would do well to take them into consultation when discussing your particular film needs. With the new extension of the Circuits work, they can be a real help in planning programs which will fit your individual bill. Call on them. They're anxious to assist you.

AT the Industrial Circuits conference held recently in Regina, projectionists from the three Prairie provinces gathered to discuss general problems in connection with the service for 1944. Among those in attendance were the above projectionists. Left to right (back row) Stanley Trysinsky, whose territory of operations includes the city of Edmonton, and stretches to the coal mining areas west to Mountain Park; George McNie, whose area includes Regina, Saskatoon, Prince Albert and Moose Jaw; James Tilley, who covers the industrial regions of Manitoba, operating from Winnipeg.

Front row, left to right, are Harry Duthoit, a second projectionist servicing the Manitoba territories and working out of Winnipeg; and Bernard Hoy, operating from Calgary to the oilfields in Turner Valley and the coal mining region of Drumheller Valley; Clayton Bricker, (missing from above) operates from Lethbridge, covering Medicine Hat, Tauber, Picture Butte, Blairmore, Coleman going as far as Kimberley in British Columbia.

Correspondence From Our Files

From the Maritimes

"Good industrial shorts as well as war shorts are enjoyed very much by employees." — *Trenton Steel Works, Trenton, N.S.*

"Show enjoyed by 500 men. Good for morale of men. Would like to have show back again as soon as possible."—*Reserve Labour Pool, Halifax, N.S.*

"Your show was swell and could not ask for more only come again." — *John Flood & Sons Ltd., St. John, N.B.*

From Quebec

"If possible we would like to have films on fire, sickness and accident prevention." — *Com. Textile, St. Anne's, Montreal.*

"These pictures were enjoyed thoroughly by the personnel at this plant. We appreciate the fact that we are on your visiting list and we say, 'Keep up the good work, it's good for the morale'." — *Dowty Equipment, Aqueduct St. Plant, Montreal.*

"Continued interest in your programs is the best guarantee we can give you as an appreciation." — *Montreal Hardware, Montreal.*

From Ontario

"Our employees seem to enjoy actual battle scenes especially with Canadian services."—*Field Bros. Ltd., Kingston.*

"These films provide a half hour of thought provoking relaxation and are a steadying influence by reminding in a realistic way that the war is not won until after the last shot is fired." — *Walker-Wallace Ltd., Toronto.*

"This film (Malta) should be shown in all war plants." — *Marsland Radio Engineering, Kitchener.*

From the Prairies

"Shop men are interested in shop procedures and films of that nature. Training films should be well received."—*Kipp Kelly Ltd., Winnipeg, Man.*

"Prefer main film to cover current news with secondary film 'entertainment'." — *Imperial Oil Co., Ltd., Regina, Sask.*

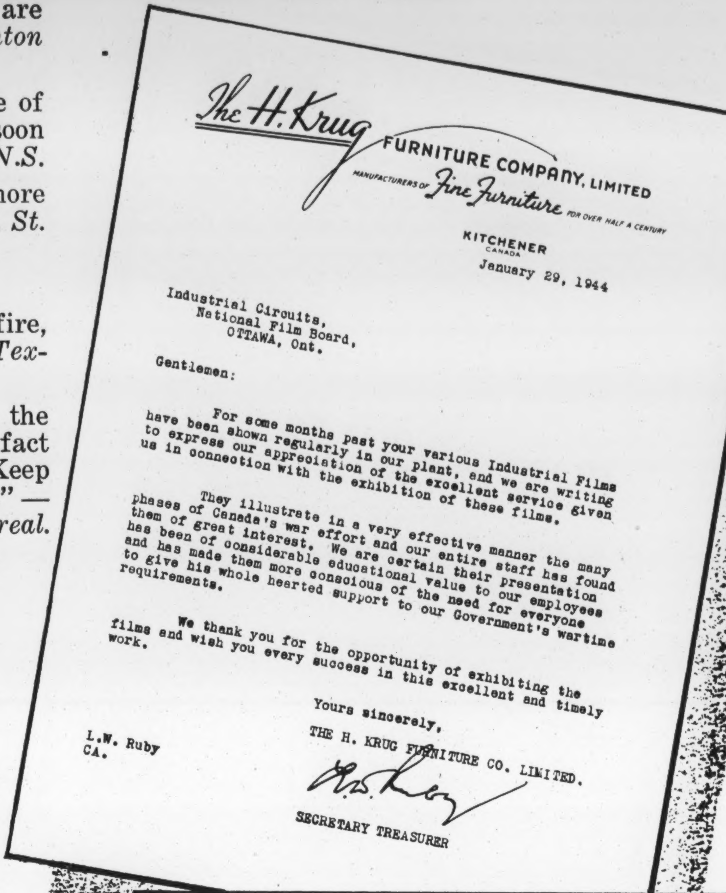
"The film (Arm behind the Army) was very good but all your production films are concerning munitions and articles. How about food — bread, flour — soldiers cannot fight if they don't eat." —*Robin Hood Flour Mills, Saskatoon, Sask.*

From British Columbia

"Malta G.C. is an excellent and timely reminder of how much we owe to the defenders of that little island. The second film brings home the uses of wood in every phase of warfare."—*British Aero Engines, Vancouver.*

"Attack Signal excellent picture and most useful in pointing out the results of carelessness."—*B. C. Electric Co., Victoria.*

"These films were greatly appreciated by the staff, and the next showing is being looked forward to with pleasant anticipation." — *Gordon & Belyer, Vancouver.*



The H. Krug FURNITURE COMPANY, LIMITED
MANUFACTURERS OF Fine Furniture FOR OVER HALF A CENTURY
KITCHENER
CANADA

January 29, 1944

Industrial Circuits,
National Film Board,
OTTAWA, Ont.

Gentlemen:

For some months past your various Industrial Films have been shown regularly in our plant, and we are writing to express our appreciation of the excellent service given us in connection with the exhibition of these films.

They illustrate in a very effective manner the many phases of Canada's war effort and our entire staff has found them of great interest. We are certain their presentation has been of considerable educational value to our employees and has made them more conscious of the need for everyone to give his whole hearted support to our Government's wartime requirements.

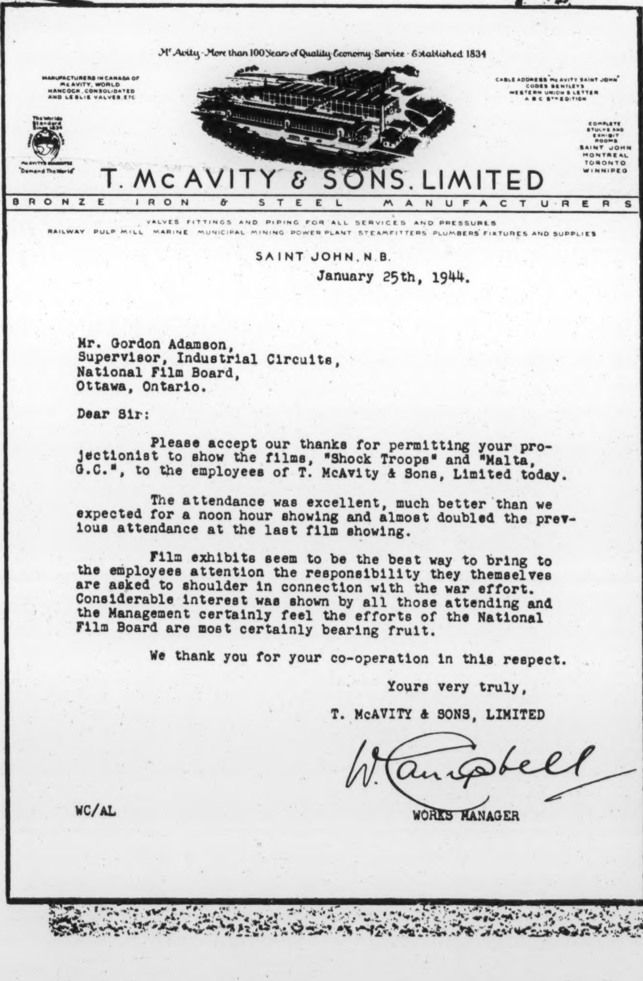
We thank you for the opportunity of exhibiting the films and wish you every success in this excellent and timely work.

Yours sincerely,

THE H. KRUG FURNITURE CO. LIMITED.

SECRETARY TREASURER

L.W. Ruby
CA.



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SAINT JOHN, N.B.

January 25th, 1944.

Mr. Gordon Adamson,
Supervisor, Industrial Circuits,
National Film Board,
Ottawa, Ontario.

Dear Sir:

Please accept our thanks for permitting your projectionist to show the films, "Shock Troops" and "Malta, G.C.", to the employees of T. McAvity & Sons, Limited today.

The attendance was excellent, much better than we expected for a noon hour showing and almost doubled the previous attendance at the last film showing.

Film exhibits seem to be the best way to bring to the employees attention the responsibility they themselves are asked to shoulder in connection with the war effort. Considerable interest was shown by all those attending and the Management certainly feel the efforts of the National Film Board are most certainly bearing fruit.

We thank you for your co-operation in this respect.

Yours very truly,

T. McAVITY & SONS, LIMITED

W Campbell

WORKS MANAGER

WC/AL

VOL. 2, NO. 4 FIGHTING FILMS PROGRAM D

your next program in 29 minutes running time

The Labour Front . . .

BACKGROUND: Through the joint efforts of labour and management, the Allied Nations have today channelled the greatest force of muscles and minds the world has ever known. Manpower will ultimately decide the outcome of this war; for behind the armies clashing with unprecedented fury along the battlefields of the world, behind the guns and planes and ships and cargoes, stand the energies and skills of working men and women. On the fighting and production fronts, great reservoirs of manpower in Canada, in Britain, United States and Russia have turned the tide against the enemy. "The Labour Front", produced by the National Film Board, documents the glowing record of the people's contribution towards Allied victory.

TREATMENT: "It is men, not weapons, that decide". Hitler told the German people; London and Stalingrad gave the proof to those words. The tanks that had charged through France were stopped in Russia. Hitler learned in the Soviet Union that he had met his manpower match. And in Germany the phrase changed from "work or fight" to "work and fight".

To bolster the labour front, Germany conscripted men from occupied countries into the Reich at the rate of 70,000 a month. But the danger in German plants today lies not only in the power of Allied bombing. From the thousands of silent, wary-eyed workers comes the constant threat of sabotage.

In the United Nations the lesson of manpower has also been learned. From queues outside employment bureaux, from 'no help wanted' signs, hoboes riding the rods and men searching garbage cans for scraps of food, has arisen the new pledge to safeguard the position of every worker, to guarantee every man the right to live. There has arisen, as The Labour Front indicates, a determination to organize, utilize the mighty manpower resources of the Allied countries.

Employment has ceased to be a haphazard affair. Existing skills and inclinations are being channelled and developed to existing needs. Problems of workers are being investigated and solutions advanced. And, as opposed to the slave labour of the fascist nations, the Allied countries are showing the tremendous results that can be realized from free people working freely for a common cause.

THE TIE-IN: "The Labour Front" stands as a tribute to the contribution of industrial men and women. Everywhere there is proof, of the gigantic strength a nation gathers when its greatest asset—the living force of its people—is mobilized to the full. And those same energies and skills that have achieved the impossible in wartime production, will, with greater purpose, as the film points out, help in building the peace to come.

A Drop of Milk . . .

BACKGROUND: To no other country has this war come with as great a force as to our ally, the Soviet Union. In no other land has Nazi barbarism and terror struck with more undisciplined violence. But the trail of blood dripping from the German sword stretches the length of Europe. Russia has seen that trail continued into her own land. To provide a visual record of the Nazi horror created in several of the occupied countries as well as her own, Russian film units have produced a full-length feature titled "This Is The Enemy". Through special arrangements with the Artikno Film agency in New York one of the episodes in that picture, "A Drop Of Milk", has been obtained for showing to Industrial Circuits audiences. Gripping, dramatic in its simplicity, this excerpt, complete in itself, finds its setting in Poland.

TREATMENT: In a downpour of rain, a Polish father walks in the night, carrying his infant child in his arms. As he moves through the streets, he comes upon a long row of Polish men and women facing a German firing squad. In horror, he continues along.

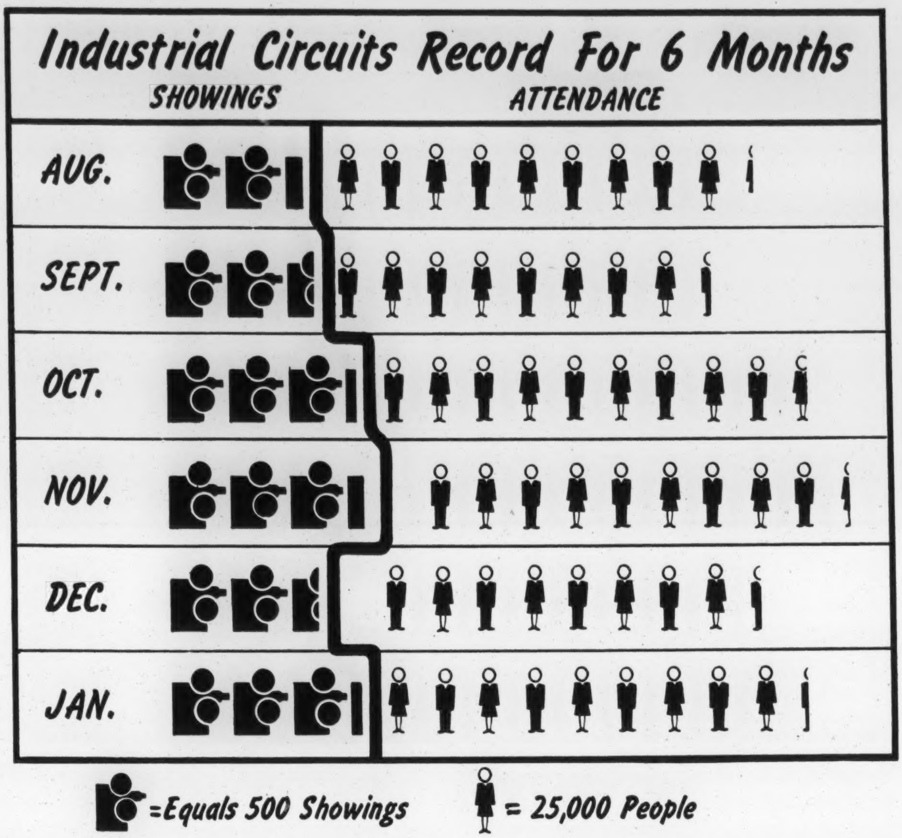
But the baby is sick. He knocks at a door and asks admittance. Once inside, he finds two German officers drinking tea. They ask for milk but are told there is none to be had. The father, in turn, asks for a drop of milk for the baby. Forgetting the denial to the officers, a young girl brings some. As she is about to give it to the infant, the cup is shot from out of her hand. A skirmish follows and one of the officers is killed.

The result . . . hostages, among them the father, the young girl, the housewife. Wounded, but not killed by the firing squad, the father manages to raise himself from the heap of dead. He makes an escape — across the border and into Russia. Here he is cared for and later joins a Red Army unit.

And soon he is in action, fighting the German invaders. To him it is revenge — revenge for all occupied peoples in all countries. And, climaxing the film, he finds himself, in the heat of battle, face to face with the German officer who had fired the revolver in Poland, who had given commands to the firing squad.

THE TIE-IN: While the film itself is recorded in the Russian tongue, English sub-titles lend continuity to a clear moving plot. The tense, powerful episode related in "A Drop of Milk" is one being repeated today on a thousand different battlefields everywhere. Its message is forceful and direct — death to the German invaders!

Britain's workers get their films



CANADA'S Industrial Circuits has its counterpart. Latest information comes from Britain, where the "Factory Film Service", bringing motion pictures directly to the men and women in plants, has been in operation since the summer of 1941. That it is doing a job, one that has grown in importance and scope almost with the months, as it were, stands substantiated by the fact that today some four thousand showings reach an approximate audience close to a million workers in England each month.

The Factory Film Service was first undertaken by the Ministry of Supply. Its purpose was singular and simple — to inform the workers of Britain about the progress of the war in relation to the use of the equipment they were making. With this object in view, a series of productions under the general title "Warwork News" was issued fortnightly. Under this series, some forty reels have been completed, dealing with numerous subjects such as Shell Filling, Importance of Wood, Army Salvage, Flax Industry, Production in Russia, Reclamation of Timber, Make-Do and Mend, Factory Health and so forth. Newsreels dealing with world events are released in the plants through this service even before they are shown in the commercial theatres.

Today, the number of projectionists employed by the Service numbers 136, all of them women. Through the special training school for operators, which has been functioning for over two years, some 300 projectionists have now been turned out.

One-half of the 136 projectors are mobile, travelling through planned areas for the scheduled showings. The other half are engaged in servicing plants so large that the machines must remain stationary, offering continuous showings throughout the day and night. To appreciate what is actually involved in some of these screenings, one need but consider the fact that numerous plants using films are of enormous size, one of these, for example, being eight miles long and five miles wide. That place, as you can well imagine, holds quite a few workers.

In Britain, the Factory Film Service is not a free project. For each visit, a plant must pay five guineas, or close to $24.00 in our currency. All showings are held in the factory canteens of which Britain has approximately 7,500 in number. Since the greatest percentage of industries in England today works on a three shift basis, showings are given to each shift.

Factory Film Service showings are booked on a fortnightly basis, a new program of movies being presented every two weeks. Contracts for this service are sold on a yearly plan, firms being bound to the commitment from the date of drafting to the end of the fiscal year. Plants must also arrange for the transportation of the projectionist and her equipment to and from the factories.

That is the story of Britain's counterpart of our Industrial Circuits. Since 1941, its showings have increased almost 350 per cent; its attendance has risen from two million to eight million. That such achievement has been realized in so short a period, speaks significantly of its continuing value.

☆

our cover . . .

In them lies the power of a nation . . . the men and women whose energies and skills have been mobilized to bring about the defeat of the enemy. People of Canada, they are the muscle and brain behind our fighting men, maintaining the flood of vital production on the Dominion's home front. Featured on the current Industrial Circuits program, "The Labour Front" is an emphatic tribute to the manpower of the United Nations.

N.F.B. INDUSTRIAL CIRCUITS EXTENDS PROGRAM SERVICE

TO MEET the frequent requests for films related more specifically to the needs of individual industries, the Industrial Circuits announces an important departure in the monthly service it is offering to plants and factories across the Dominion. This development now allows for the augmenting of regular, basic programs with special, supplementary films of interest to particular firms.

To date, the development of the Circuits' activities, the organizational and technical problems involved have fully occupied the time and energies of its personnel. With the project now soundly established, with the Circuits operating on a firm basis, it has become possible to enter upon this important extension of the service.

This new departure, therefore, making possible the showing of films directly related to needs of particular industries, will be of interest both to management and workers alike. Films treating subjects such as health, safety, nutrition, job training, women in industry, day nurseries, labour-management relations, the suggestion-box and so forth, are also being made available for supplementary screenings.

While motion pictures dealing with specialized industrial processes have for some time now been produced both in Canada and in several other countries, the majority of these have not been of sufficiently broad, general interest to permit inclusion on the basic Industrial Circuits programs. And to operate forty Industrial Circuits on a national scale, to co-ordinate publicity material and display posters, a uniformity in basic programs is imperative. The supplementary service, therefore, may be utilized either through longer showings or additional ones, the latter depending upon the projectionist being able to adjust them to the regular schedule of his circuit. Particularly to those firms using their own projection equipment for showings to plant personnel, this extended service should commend itself.

A list of films to be made available under this plan is now being compiled and will be released shortly. Pictures will be classified both according to type of industry and to specialized topics of interest. Library sources for additional industrial films will also be provided.

The Industrial Circuits offer this new phase of its service in keeping with its over-all purpose—to serve with maximum efficiency the film needs of Canada's men and women in industry.

Published by the National Film Board for the Industrial Circuits. All communications should be addressed to Gordon Adamson, Supervisor Industrial Circuits, National Film Board, Ottawa, Ontario.

Edmond Cloutier, Printer to the King's Most Excellent Majesty. Printed in Canada, 1944.

All items contained in this publication refer to Canadian 16 mm distribution only unless otherwise specifically stated.

LABOUR'S FILM FORUM

Vol. 1, No. 3. ISSUED BY THE NATIONAL FILM BOARD, OTTAWA March, 1944

What is 'Documentary'?

NFB
CANADA

Documentary movies—what are they? What about them? What makes them different from the everyday commercial movies you see in the neighbourhood theatres?

First of all — they're real, not make-believe. They're about the things around us — jobs, wars, people, changes, our country and its relation to other countries.

Second — they're made for a special reason. Not just to set you up with half-a-dollar's worth of entertainment, but to show you in plain, strong colours, the developments around us that are affecting our lives, — to show how the world of today is taking on new shapes, new ways of working and living.

In other words, documentary movies set out to explain. They don't do it by preaching a sermon — they do it by sifting and selecting the important events that go on around us, and putting these events together in a way that gives us a fresh look at the way the world is going.

Docuementaries generally are short movies — one or two reels, about fifteen minutes running time. Some of the longer ones lately have been feature-length — like the powerful Russian war movies, "Moscow Strikes Back" and "Siege of Leningrad", and the British Army's "Desert Victory", giving the whole story of last year's North African campaign. But mostly they're short treatments of particular problems close to us.

In England in the early 1930's, the documentary film business really got going. English film-producing units, sponsored by the government, began to make short pictures about subjects like housing conditions, transport, health, workers' incomes and food prices.

These films startled and jarred big sections of the British public, and gave them a good look at conditions around them. There as here, people can go on from day to day and never realize how their neighbours are living, or how their jobs fit together in the national scheme.

Here in Canada, you see documentaries on the National Film Board's Trade Union Circuits, and often in the theatres as well. You'll notice that a lot of their material is like the newsreels in theatres — real-life stuff, not rehearsed or acted. And when a documentary picture goes into detail, about a special subject like day nurseries or night shifts or factory canteens, it is photographed on actual locations, in the factories, and with working people as the "actors". The aim is to make the pictures real, make them genuine, and make them clear, so they give a true picture of things as they are, or show the ways that changes and improvements can be made.

There's plenty of room in documentary for excitement, romance, suspense: not the "Western" variety, with cowboys pounding over the sagebrush to rescue the mailcoach; but the real business of living, acting our own real-life parts in the tremendous developments that are going on right now in wartime, and looming up ahead in the post-war period of readjustment and new growth.

Documentaries are your pictures — what they're about, is determined by your demands. They're made up for your use, to show conditions that exist at home, to show you the war abroad, to show the ways of working and organizing that have grown up in other countries, or in other parts of our own country. Documentaries can help us get a better grasp of our own world, and help to show us how we can make it a better one to live in.

THIS MONTH'S PROGRAM

BATTLE IS THEIR BIRTHRIGHT—The young men and women who are fighting the war on the front lines of this chaotic world had a birthright in turbulent times. It was BATTLE!

There is a generation growing today. It, too, has a destiny, still, to a large extent, problematical.

Not only in Canada, but all through the world, the war being waged is far greater than a military struggle for supremacy of nations. Naturally, that is the immediate and most important struggle, but a rousing victory will not be complete unless the young people still in school are able to face a full future.

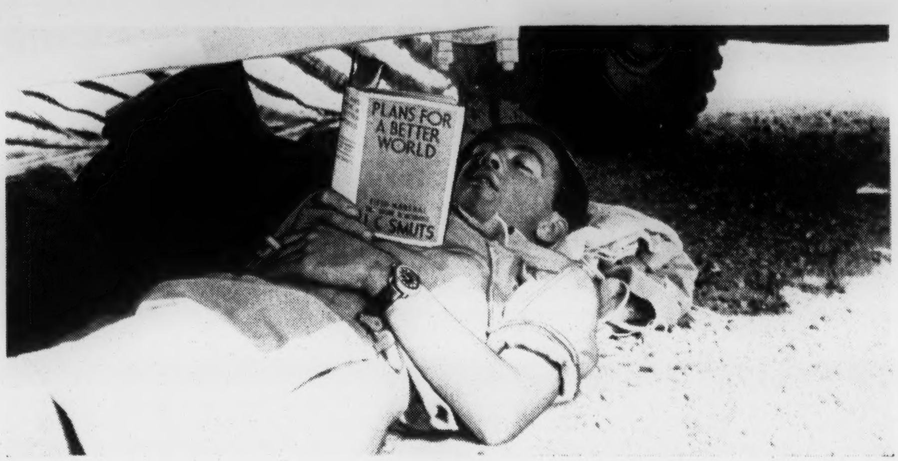
"Battle is Their Birthright" dramatically presents the stirring story of today's young people, educated for peace but proven vastly capable of learning the furious arts of modern war in an amazingly short time. The film also illustrates their determination to use the experiences of today in building the better world of the future and their ability to shoulder that responsibility.

Young Canadians, as well as the other youth of the United Nations, did not fling themselves into war for adventure or to escape the restlessness of their home surroundings. They went into war to protect those home surroundings from the enemy, to retain the hope for tomorrow's world that was part of their being in peace.

DISCUSSION TRAILER — After you are shown "Battle is Their Birthright", a discussion trailer will be screened in which an informal panel group is pictured, in sound, discussing some of the matters raised in the film. One of the people in the group acts as chairman and they all talk over things they noticed while watching "Battle is Their Birthright". It is meant to stimulate discussion in the audience forum after the program ends.

GRAND MANAN — Here you see how the fisherpeople of Grand Manan live on their beautiful island in the waters of Fundy, between New Brunswick and Maine. Outside of its pictorial value, "Grand Manan" provides a wealth of information in this unique spot in the Canadian Maritimes.

AND WHAT OF POST-WAR?


PLANS FOR A BETTER WORLD
J. C. SMUTS

EVERY CANADIAN is interested today in the plans to be made for the world of the future. Every Canadian fully realizes now that those designs for the post-war era must be made at once, and that the job should not be left alone to men of government or men of business. The planning of the world of tomorrow is a job in which every Canadian, facing the immediate urgent problem first, must take a hand to ensure a future that will be worth while.

Each of us has our idea as to what problems are to be solved in that planning and what the solutions to those problems should be. Each of us must present that idea so that all ideas can be gathered, molded into a whole and dealt with as a whole.

The communities of the Dominion have been urged to organize the ideas of their citizens and to submit a plan formulated from those ideas. There can, of course, be no haphazard course followed in rounding out the community plan. It must have a design in itself, so a solid base must be found before it can emerge as a definite submission.

To set this base, there are numerous aids available to everyone. The Trade Union Circuits provide you with wide views and clear presentation of details on the world and the Dominion on which you can base your understanding of matters today as they concern problems to come. So do the Industrial Circuits.

The current program of the Trade Union Circuits deals specifically with the post-war era and its problems. Being distributed to the local meetings are three interesting booklets to aid in audience discussion. They are "Canada In Action", a publication of the National Film Board and the Canadian Council of Education for Citizenship; "Canadian Affairs", featuring an article "Future for Fighters"; and "Of Things to Come", a pamphlet on the CBC program.

Other printed aids to post-war planning are available. There is "Reconstruction; The First Steps", by Eugene Forsey, Ph.D., Director of Research for the Canadian Congress of Labor, "Victory, What Then?" a report of the special committee on Post-War Rehabilitation of the Executive Council of the Trades and Labor Congress. Another help would be a book issued by the Canadian Broadcasting Corporation entitled "Of Things To Come". The contributors to the book include Leonard Marsh, Grant MacNeill, Malcolm Wallace, Dorise Nielsen, Dr. L. B. Pett, Pat Sullivan, C. H. Millard and other well-known Canadian leaders.

There is also "Films For Freedom", prepared for the Trade Union Circuits by the W.E.A.

Nutrition Films...

Sponsored by the Wartime Prices and Trade Board, a group of films known as "The Knife and Fork Series" is being produced by the National Film Board as an instrument of assistance to the Canadian housewife in the problem that is continually growing in size — wartime housekeeping.

Particularly designed to aid the urban housewife, the series, when complete, will include nine films. Four are already made and are available from the NFB. They are, "The Main Dish", which deals specifically with planning meat dishes, choosing meat cuts, and various cooking methods; "Vitamin-Wise", explaining the vitamin categories of vegetables and how to secure the maximum food value from those vegetables; "Coupon Value", presenting a demonstration of how to cut down home food consumption to ensure equal food distribution, and "When Do We Eat?", (on this month's Industrial Circuit program), which is addressed specifically to the war worker who has been forced by circumstances to eat at varied hours and under varied conditions.

There are other films, to be produced under the auspices of the Food Conservation Committee.

Your Ladies' Auxiliary will probably be interested in these releases.

Correspondence...

The Trade Union Circuit office of the National Film Board in Ottawa is anxious to know how its film programs are being received by the various locals. Constructive suggestions regarding films screened at your local are welcomed. You are urged to take a personal interest in making the Circuit successful and satisfactory.

One of the letters recently received was from Pioneer Lodge, No. 103, International Association of Machinists, at Stratford, Ontario. It read:

> Dear Sirs:
>
> The members of this Lodge wish to express their appreciation to you, also to the operator, for the showing of various films on the Trade Union Circuit. They are not only entertaining, but are of educational value.
>
> With best wishes for success, we are
>
> Yours very truly,
> (Signed) T. P. Flanagan,
> Rec. Sec'y.

Trade Union Circuits...

JANUARY REPORT

Province	Shows	Attendance
Nova Scotia	13	695
New Brunswick	4	160
Quebec	33	5,080
Ontario	175	20,522
Manitoba	27	2,416
Saskatchewan	1	12
Alberta	47	6,396
British Columbia	68	7,896
Totals	368	43,177

Industrial Circuits...

This month, the war workers of Canada who are served by the Industrial Circuits of the National Film Board are seeing an unusually interesting program of films in their plants, including:

WHEN DO WE EAT? . . . graphically dealing with the importance of eating correct food. By producing a great variety of conditions as well as lessening the variety of foodstuffs, war has provided Canadians with an opportunity to know the tremendous advantages of correct diet.

FRONTLINE REPORTS . . . consisting of three sequences, it brings a film record of Allied activities in Italy, Russia and Canada to the screen.

CAISSONS GO ROLLING ALONG . . . the famous song of the United States artillery presented in a lilting sing-song.

Have you checked to see that the Industrial Circuit programs are shown in your plant? If they are not, bring it to the attention of the management.

Edmond Cloutier, Printer to the King's Most Excellent Majesty. Printed in Canada, 1944.

How to Obtain These Films

for

OCCASIONAL OR SPOT BOOKINGS

Many 16mm. film libraries, both non-profit and commercial, in various parts of the country, have prints of the films described in these circulars. The subjects listed in the double-page folder are available on a rental charge basis. Those appearing on the single-page circular will be made available to you at a nominal service charge to cover the cost of handling. Apply to your local film distributor or to educational film lending libraries in your own or adjacent states.

If you are unable to obtain the film you wish in your own area and wish information concerning the film libraries which can supply specific titles, write directly to

NATIONAL FILM BOARD OF CANADA
84 EAST RANDOLPH ST., CHICAGO, ILLINOIS

FOUR FREEDOMS

FROM PRODUCTION TIME LOSSES

"DRIVE FOR VICTORY"

Conservation film for all types of Motor Vehicles

GET THEM TO WORK ON TIME!

— one carelessly kept car can make FIVE Victory Workers lose starting time.

Prepared with the technical assistance of

GREATER NEW YORK SAFETY COUNCIL

TAKES UP:

- Dirty and congested floors
- Keeping tools in proper place
- Oil and water on the floors
- Machine Guards
- Using proper tools for the job
- Checking work properly
- Use of goggles
- Proper work clothing
- Personal cleanliness
- Importance of First Aid

"WE'RE ON THE SPOT"

KEEP 'EM PRODUCING AFTER THEY REACH YOUR PLANT — Accident-lost time can't be made good!

. . . and this goes for Women Workers, too!

"DANGER...Women At Work"

SHOW THEM HOW TO COME IN TOMORROW — READY FOR A FULL DAYS WORK

A SAFETY HEALTH FILM

TIES IN WITH THE WAR EFFORT

TAKES UP:

- correct work clothes
- safety procedures
- care of colds
- rules for relaxation
- proper meals and nutrition
- dermatitis
- absenteeism etc., etc.

A SAFETY HEALTH FILM

Designed especially for the new army of women war workers in industry.

TAKES UP:

- correct work clothes
- safety procedures
- proper posture at work
- correct diet
- protective clothing
- absenteeism, etc.

"TOMORROW'S TOO LATE"

A SAFETY HEALTH FILM

PRICES:

Drive for Victory, 16mm sound	$27.50
We're on the Spot, 16mm sound	$42.50
16mm silent	38.50
35mm slide film (with record)	17.50

Danger . . . Women at Work, 16mm sound	$42.50
Tomorrow's Too Late, 16mm sound	42.50
When both the above are purchased together	75.00
Danger . . . Women at Work 35mm slide film (with record)	17.50
Tomorrow's Too Late 35mm slide film (with record)	17.50
When both the above are purchased together	30.00

NO RENTALS FROM THE PRODUCERS

VISION EDUCATIONAL PRODUCTIONS
509 FIFTH AVENUE · NEW YORK CITY 17, N. Y.
Producers of Industrial, Educational, Safety and Training Films

VISION EDUCATIONAL PRODUCTIONS

509 FIFTH AVENUE, NEW YORK, N. Y. 17 VANDERBILT 6-0890

PRODUCERS OF INDUSTRIAL, EDUCATIONAL, SAFETY AND TRAINING FILMS

March 1, 1944

WOMEN'S BUREAU
DEPARTMENT OF LABOR

Gentlemen:

VISUAL training is FASTER training! For this reason, we again call your attention to our Safety Training Films.

The Armed Forces are using sound films as an integral part of their basic training. They have found them extremely efficient. You can achieve the same efficiency in your Safety Program by using the type of Sound Motion Picture and Sound Slide Film which we produce.

Enclosed is a leaflet describing a few of our films which have helped Directors of Safety Training in many plants and factories producing for VICTORY.

Do not hesitate to write for further information regarding these and our other Safety Training and Conservation Films.

Sincerely yours,

Andre' D Bustanoby
Andre D. Bustanoby

P.S.
We expect to pre-release our latest Industrial Safety Training Film during the 15th Annual Convention and Exposition of the Greater New York Safety Council, to be held at the Hotel Pennsylvania, New York City, March 28-30. Come and see our productions. We will be at Booth 59.

WOMEN'S BUREAU
FEB 22 1944
DEPARTMENT OF LABOR

☆ FILMS *on Food and Nutrition*

★ WITH SPECIAL APPLICATION TO WARTIME PROBLEMS

PRODUCED BY THE NATIONAL FILM BOARD, OTTAWA, CANADA
A DEPARTMENT OF THE CANADIAN GOVERNMENT

DISTRIBUTED IN THE UNITED STATES BY THE NATIONAL FILM BOARD OF CANADA
84 EAST RANDOLPH STREET, CHICAGO, ILLINOIS

ANNOUNCING . . .

The National Film Board's "Knife and Fork Series"

produced with the sponsorship of the Canadian Wartime Prices and Trade Board and presenting a practical guide tô wartime housekeeping.

☆

WHAT ARE CONSUMER FILMS?

The National Film Board's KNIFE AND FORK SERIES is a typical example. What are the food problems foremost in the minds of Canadian housewives? How can the producers of consumer films ascertain demand in advance of production? Food rationing and other controls, imposed in the interest of the community at home and to assist our allies abroad, test the housewife's ingenuity and present her daily with fresh tasks. Questionnaires were issued after special showings of some of the Film Board's Consumer Films, and out of a direct discussion between producers and audience new policies for future films in this group were evolved.

THE "KNIFE AND FORK SERIES"

is planned specifically to meet the needs of urban women. There are nine films on the list at present, three of which are complete. The principle was to plan a film around each individual type of food such as meat, milk, cereals, food extenders, vegetables and fruit, etc., the approach to each one being: eat to maintain your health on limited supplies and with decreasing variety. The films urge new respect for the value of food, they give a new meaning to the word 'waste', they stress the urgent need for conservation of shipping space and food supplies.

To round out the series, a film which bears the working title THE DAY'S MEALS will sum up the work of the North American housewife in relation to the food situation.

Because it was found necessary to produce a film dealing specifically with food problems of the industrial worker, one reel temporarily entitled FOOD IN INDUSTRY was added.

THE MAIN DISH

16mm; black-and-white, 18 minutes; sound. Purchase Price: $30.00.

Conservation needs and food planning in regard to wisely chosen cuts of meat. Various cooking methods demonstrated to help housewives plan meals economically.

The film opens with a reminder that half our meat production must go directly or indirectly to serve the needs of war. There has been, during the past few years, a tendency on the part of housewives to prefer steaks, tenderloins and the other, more expensive cuts of meat. THE MAIN DISH explains why this is bad home economics and why the housewife should spread her buying over all the cuts. "Money spent for a good pot roast is wisely spent", says the butcher. And, following his words, careful housewives turn to braising, stewing or boiling cuts that come from all but the hindquarters of the animal. These cuts are shown first in diagram form, then on the butcher's chopping block, and finally in the home where careful storage and sound cooking methods are essential to make appetizing meals from the cheaper cuts of meat.

By planning and cooking well, the wartime housewife is earning thanks from the nation as she helps solve the problems of rationing during a national food emergency.

☆

VITAMIN-WISE

16mm; black-and-white, 18 minutes; sound. Purchase Price: $30.00.

Explains the vitamin categories of the main fresh vegetables and proceeds to advise housewives to experiment, save and stretch, improvise, and obtain the maximum food value by employing proper cooking methods.

Warning against waste due to careless cooking and stressing the need for conservation of both food and fuel, VITAMIN-WISE explains how meal planning demands not only commonsense but also a good deal of imagination. As a practical guide to wartime housekeeping, VITAMIN-WISE is another chapter in the KNIFE AND FORK SERIES produced by the National Film Board of Canada with the sponsorship of the Canadian Wartime Prices and Trade Board.

The film demonstrates graphically the vitamin groups of our staple vegetables and fruits and urges housewives to make the best of their larder's stock. Laura Pepper, of the Canadian Department of Agriculture, Consumers' Branch, shows proper cooking methods, new and economical ways of preserving and storing the Nation's precious crop of vegetables.

COUPON VALUE

16mm; black-and-white, 18 minutes; sound. Purchase Price: $30.00.

Presents a practical demonstration of how best to cut down home food consumption to insure equal food distribution. Explains the Coupon Value Chart which aids housewives in the selection and preparation of coupon-wise cuts.

Here again the National Film Board's KNIFE AND FORK SERIES gets together with the Wartime Prices and Trade Board to give a practical outline to plan our week's protein supplies. With large quantities of Canada's home-produced meat going abroad to feed members of the Armed Forces as well as the people of Britain, Greece and other Allies, meat rationing at home has become essential. As a result of these priority needs, Canadian home consumption had to be cut by twenty per cent as compared to the standards pertaining in 1942.

All meat is now government controlled and checked. Butchers had to take courses in quartering and cutting up carcasses in accordance with rationing regulations. "Thinner steaks, smaller roasts", the butcher says. "Our job is to make the meat go farther." COUPON VALUE shows us what happens to our coupons once we have handed them in to the butcher. To him they are the equivalent of cash—on his coupon turnover depend his future supplies.

With the co-operation of the housewife, meat rationing today and tomorrow will be a success provided she arrives at the butcher's with a plan in her head to carry her over the whole week. She knows that food saved today means life and substance for the starving people of Europe tomorrow.

☆

Further subjects in the "Knife and Fork Series" dealing with wartime nutrition problems are in active preparation and will be available within the next few months

FOOD EXTENDERS suggests practical methods for stretching food, at the same time maintaining nutrition standards. The film also tells of the many contributions made to cooking lore by the different nationalities living on this Continent.

CHILDREN FIRST emphasizes the importance of milk for growing children and suggests the best uses to which it can be put should our home supply be restricted.

CEREAL FILM shows the use of home-grown grains to provide variety and interest in restricted menus and points to the necessity of supplying nutritional values usually found in other, now limited, kinds of food.

THE DAY'S MEALS (see P. 1) suggests ways to give the family a balanced diet despite present food limitations. At the same time this film teaches us about food values in the future.

FOOD IN INDUSTRY (see P. 1) is addressed to the war worker who of necessity must eat his—or her—meals at varied hours and under difficult conditions. The film explains what we should eat during a working day to keep up maximum strength and energy.

For the Elementary Grades:—

VITAMINS A, B$_1$, C, and D

(Four short films) 16mm; black-and-white, 4 minutes each; sound.

Purchase Price: $6.00 each if purchased separately, $22.50 for series of four.

Each film deals with one of the main vitamin groups and gives a graphic survey of the importance for both mothers and children of eating well-balanced meals in which these vitamin categories are contained in sufficient quantity to ensure a healthy new generation and to counteract wartime food limitations.

WHAT MAKES US GROW?

16mm; black-and-white, 11 minutes; sound. Purchase Price: $15.00.

This film is made for a youthful audience, explaining the necessity for proper food. Experiments with rats show the fatal results of vitamin deficiencies, and children are advised to eat more eggs, fresh vegetables and fruit. Four glasses of milk per day should be the child's ration, with wholegrain bread, beans, potatoes, cabbage and peas as other body-building and protective foods.

Other Productions of the National Film Board pertaining to Wartime Food Problems:—

THOUGHT FOR FOOD

16mm; black-and-white, 20 minutes; sound.

For loan terms apply to Offices of the Food Distribution Administration,
821 Market St., SAN FRANCISCO, Cal.; 425 Wilson Building, DALLAS, Texas; 5 South Wabash Ave., CHICAGO, Ill.; 150 Broadway, NEW YORK CITY, N.Y.; Western Union Building, ATLANTA, Georgia.

Sale: $30.00, National Film Board of Canada, 84 East Randolph Street, Chicago 1.

THOUGHT FOR FOOD gives a resumé of Canada's food situation. Wartime shortages have impressed housewives everywhere with the necessity of studying the new science of nutrition. With the example of the Armed Forces before them housewives must now look at vitamin charts and choose with consideration foods known for their nutritional value.

FOOD, WEAPON OF CONQUEST

16mm; black-and-white, 20 minutes; sound. Purchase Price: $35.00.

Prints should be ordered from: Educational Film Library Association,
45 Rockefeller Plaza, New York City.

This film goes far beyond the problem of feeding the military forces of the United States and penetrates the Nazi lines to report the fate of conquered countries forced to turn over their farm produce to the conqueror. The picture presents a stirring challenge to the Western World faced eventually with the responsibility of feeding hundreds of millions throughout the Continent of Europe and Asia in the post-war years to come.

BATTLE OF THE HARVESTS

16mm; black-and-white, 22 minutes; sound. Purchase Price: $17.63.

Prints should be ordered from: Castle Films, Inc., 30 Rockefeller Plaza,
New York City.

Emphasizes that today, wherever men till the soil and the land yields its increase, the farmer and his fields are mobilized in a world-wide battle of the harvests, how despite labor and material shortages the farmer is answering the challenge of the United Nations for increased production of foodstuffs. This film is particularly useful as a supplement to FOOD, WEAPON OF CONQUEST, as it establishes the part North American farmers play in the battle of food.

FOR PREVIEW PRINTS OF ALL FILMS APPLY TO THE NATIONAL FILM BOARD OF CANADA
84 EAST RANDOLPH STREET, CHICAGO 1, ILL.

Issued by National Film Board of Canada: Ottawa, Edmond Cloutier, Printer to the King's Most Excellent Majesty. Printed in Canada.

JANUARY, 1944

Called about 3-6-
Di 3330

Mrs. Van Zandt
Nat'l Geo
Westchester Apts
Wo 7700
712-a

Em 3158
East Rochester -

Farm + Garden Club will show when she comes back from Boston. She will call us as to date + time.

king for Victory", compiled
d prominent clubwoman, was
onal Geographic Society.

by Mrs. Van Zandt in color
loaned by the WAC, the WAVES

vorking with the land army
ed forces in motor trans-
communications work, photo-

Women of all ages are shown employed in an amazing number of activities. One of the high lights is a "shot" revealing a 62-year-old woman in highly technical work, with scenes taken later showing her as a supervisor in the factory. Even midgets are employed in plane factories, as Mrs. Van Zandt explained, "they can crawl into small places which others are unable to reach."

Joseph Rideout of the National Geographic Society edited the film.

The premiere of "Women Workers for Victory" will be held at 8.15 o'clock tonight at Constitution Memorial Hall under auspices of the National Geographic Society. The picture will be released for general showing later.

Washington STAR, February 18, 1944.

FILM PREVIEW SHOWS WOMEN IN WAR JOBS

A preview of a moving picture, "Women Working for Victory", compiled and arranged by Mrs. Lydia Van Zandt, lecturer and prominent clubwoman, was presented yesterday in the auditorium of the National Geographic Society.

Many of the scenes were taken personally by Mrs. Van Zandt in color over a period of seven months, while others were loaned by the WAC, the WAVES and aircraft firms.

Opening with colorful sequences of women working with the land army in California, the picture shows women of the armed forces in motor transportation, mechanical work with planes and trucks, communications work, photographic work and clerical occupations.

Women of all ages are shown employed in an amazing number of activities. One of the high lights is a "shot" revealing a 62-year-old woman in highly technical work, with scenes taken later showing her as a supervisor in the factory. Even midgets are employed in plane factories, as Mrs. Van Zandt explained, "they can crawl into small places which others are unable to reach."

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November 16, 1943.

Miss Isabel A. Powell
USO, Assistant Director
Elkton, Maryland

Dear Miss Powell:

We are in receipt of your letter of November twelfth in which you asked for one or two 16mm. width films dealing with women in industry to show on November eighteenth to your club of young girls working in the ammunition plants in Elkton. We regret that the Women's Bureau has no films on women in war work to send you.

We have on deposit in our office a film called WOMANPOWER taken at the Allis Chalmers plant, and being circulated through the Office of War Information. We think this an excellent film, and believe you will be glad to show it to the girls and women in your club. We are mailing this to you and when you are through with it please have it returned direct to the Women's Bureau.

We had heard of another film on women working in war plants, called Glamor Girls of 1942, and tried to have a copy of it sent to you, but were told over the telephone that as yet it is available in the 35mm. width only.

We enclose a catalog of films on Britain at War, which have been viewed by members of our staff, and are obtainable by writing to the address given on the inside of the back cover of the catalog. You may wish to use these films for some later occasion.

We enclose further a leaflet describing two motion picture films, and listing others, issued by the Vision Education Productions of New York City. These films were sent to us for our staff to see, and we thought them interesting and instructive. So far as we know they are for sale only.

We know of one other war film which you might wish to secure for the future use of your group. This is called: IT'S YOUR WAR, TOO and was issued by the Bell Aircraft Corporation, Motion Picture Division, 2050 Elmwood Avenue, Buffalo, N. Y.

We are sending you descriptions of several films issued by the Women's Bureau, but since all of them were produced before our entrance into the war, we are trying to retire them. However, if you wish to show them for historical purposes we can lend them to you, but they are not up to date.

Would you care to have sent to you other types of exhibit materials as described on the enclosed sheets, any of the bulletins listed, or copies of the leaflets to distribute?

Sincerely yours,

Mary Anderson, Director.

All of our films were issued before our entrance into the war and we have been trying to retire them from circulation. We enclose descriptions of them and if you wish to show them for historical purposes we can send them to you, but they are not up to date. 1938

MICROFILM by
MICROSTAT CORPORATION
Manufacturers of Microstat Cameras, Printers and Enlargers
A SERVICE FOR THE SAFETY COMPRESSION AND INSURANCE OF ENGINEERING DRAWINGS AND VITAL RECORDS OF GOVERNMENT AND INDUSTRY

NATIONAL HEADQUARTERS
18 WEST 48 STREET
NEW YORK 19·N·Y·
BRYANT 9·0660

WOMEN'S BUREAU
OCT 20 1943
DEPARTMENT OF LABOR

October 18, 1943

Miss Mary Anderson
Women's Bureau
Washington, D. C.

Dear Madam:

Many government agencies are using microfilm to accomplish a radical space-saving program. This activity has been going on for some time but it is only with the enactment of Public Law 115 of the 78th Congress, Chapter 192, First Session, HR 2943 as approved on July 7, 1943, that adequate legislation has existed to render this work fully possible.

The sweeping and all inclusive provisions of Public Law 115 now enable you to dispose of many voluminous records that today occupy space, crowd your working personnel, hamper your routine operations, and by their continuing nature create the necessity of your constantly requisitioning more space and more filing equipment.

Microfilm by Microstat results from a high-precision microphotographic process and service that is probably known to you in one form or another. Our experience in microfilming vital records, books, papers, maps, photographic and documentary materials, regardless of their physical form or characteristics has been gained in the last two years of the war and before Pearl Harbor. Our optical, chemical and physical standards are in accordance with precision criteria known to the Archivist's office.

Microstat is equipped to serve you not only in Washington but throughout the United States with a technical staff approved for handling restricted, confidential and secret materials. If we can be of any assistance whatsoever in helping you in your record security and compression program, or in answering any questions relating to the rapid, efficient and economical microfilming of your records, we will appreciate hearing from you.

Sincerely,

MICROSTAT CORPORATION

Eliot Hyman

eh:ss

Eliot Hyman, President

BOSTON · NORWALK · NEW YORK · PHILADELPHIA · PITTSBURGH · WASHINGTON · CLEVELAND · DETROIT · CHICAGO · MILWAUKEE · SAN FRANCISCO · LOS ANGELES · SAN DIEGO · MEXICO CITY

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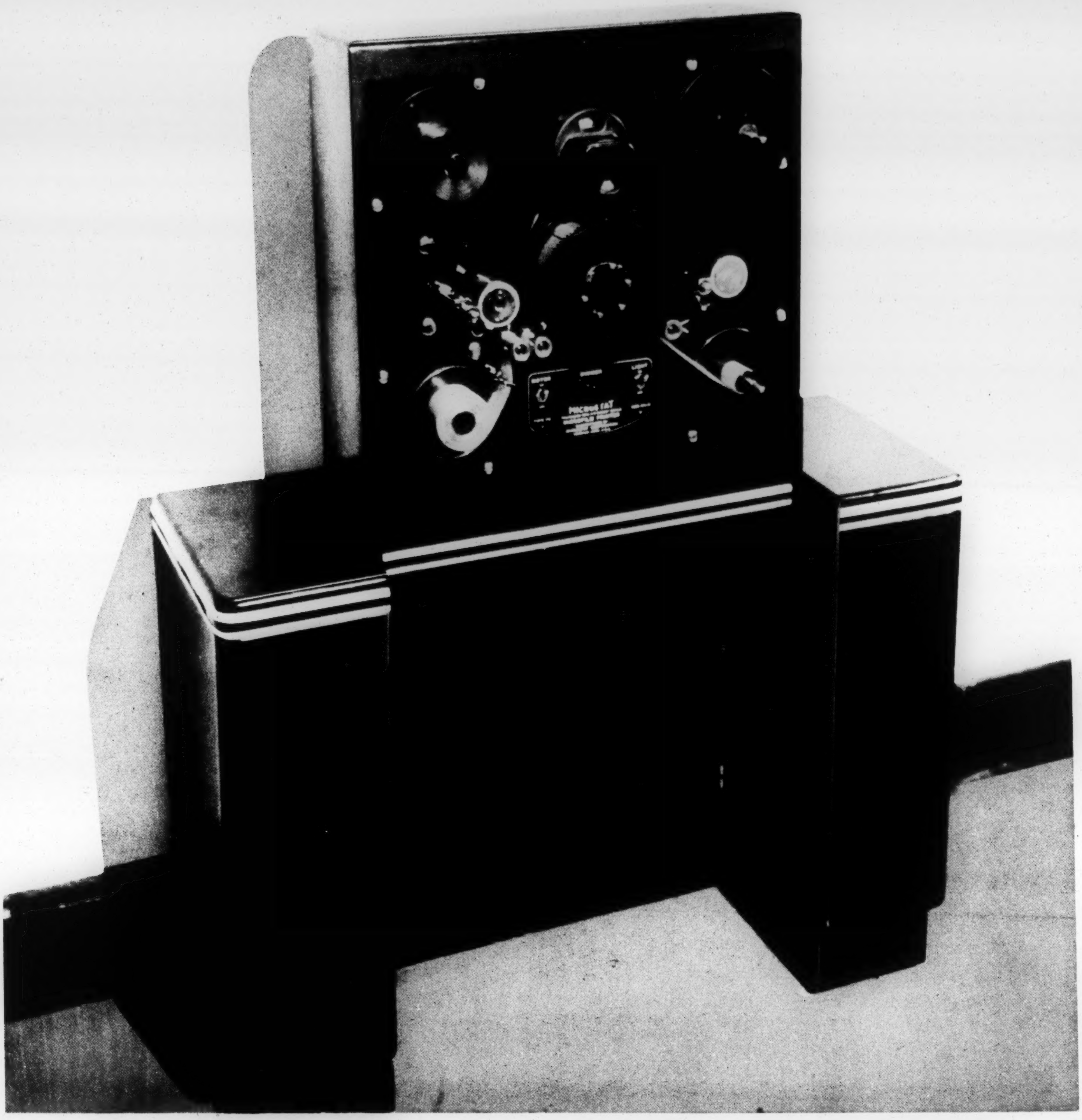
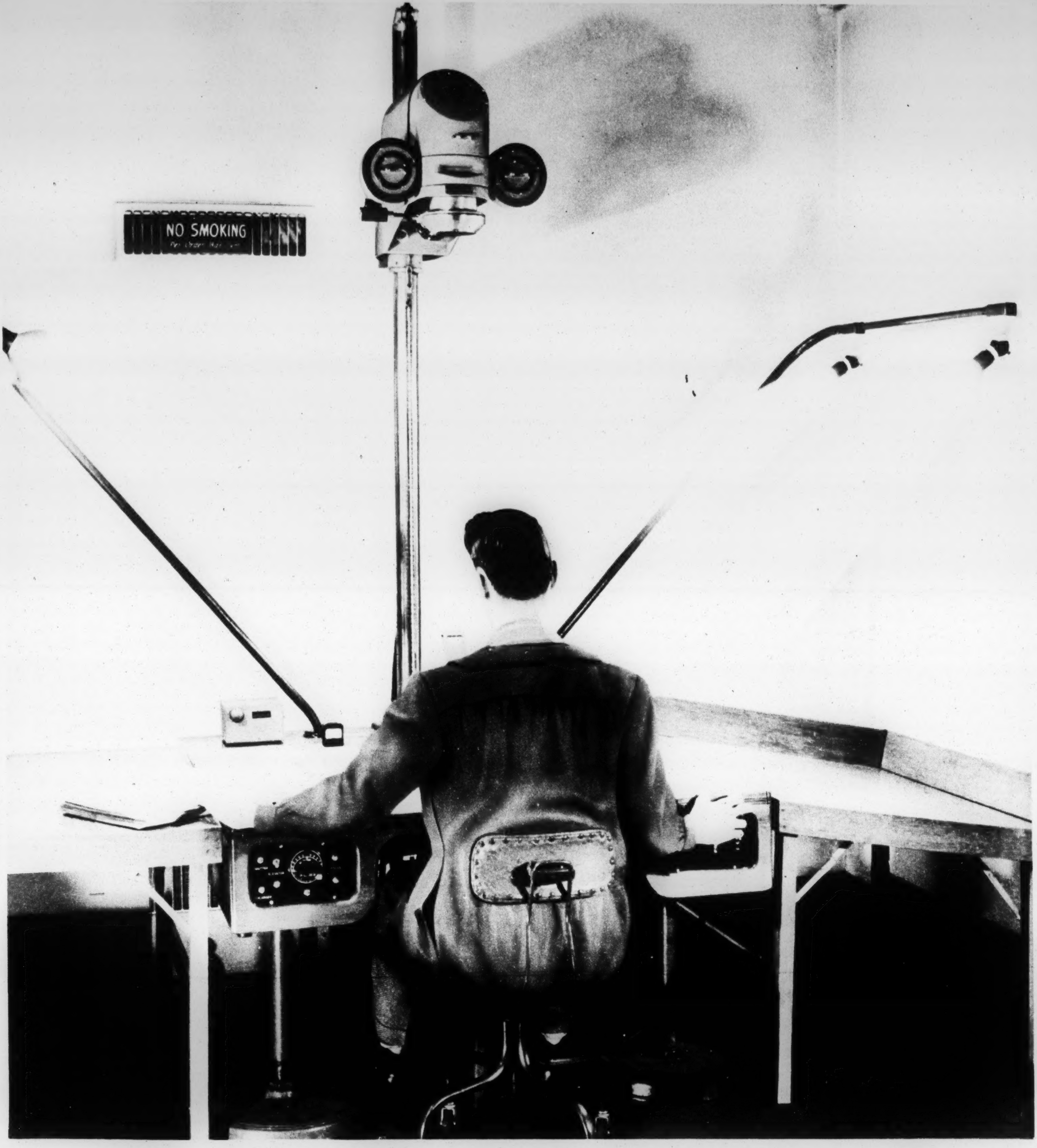


MICROSTAT HIGH-SPEED MICROFILM PRINTER TYPE P-2 FOR 35 AND 16MM FILM. CONTINUOUS CONTACT MAINTAINED AT ALL TIMES THROUGH APPLICATION OF UNIQUE OVERDRIVE AND DRUM ASSEMBLY. ACCEPTS PERFORATE AND NON-PERFORATE FILM IN 35 AND 16MM WIDTHS. VARIABLE LIGHT CONTROL AND NON-FLUCTUATING ILLUMINATION ASSURED. SELF-CONTAINED STORAGE BATTERY ACCUMULATOR AND TRICKLER CHARGER INCLUDED. PRINTING TIME PER 100 FEET EQUALS FIVE MINUTES. HEIGHT: 46", WIDTH: 34", DEPTH: 13", WEIGHT: (IN OVERSEAS SHIPPING CASE) 200 LBS. PRICE: MICROSTAT 35 AND 16MM HIGH-SPEED PRINTER TYPE P-2, SOLD SUBJECT TO PRIOR SALE AND COMMITMENTS, $1450.00, FOB NATIONAL HEADQUARTERS.



MICROSTAT ALL-PURPOSE MICROFILM CAMERA-ENLARGER-PROJECTOR MODEL J-7 B. OPERATES AT REDUCTION RATIOS FROM 9 TO 30. OVERALL COVERAGE IN EXCESS OF 32 BY 42 INCHES*. ACCEPTS 35MM SINGLE-PERFORATE FILM. FOOLPROOF ELECTRICAL CONTROLS. EXTREME HEIGHT: 9'3", WIDTH: (BETWEEN LAMP BRACKETS) 8', DEPTH: 4'3", WEIGHT: (IN OVERSEAS SHIPPING CASES) 900 LBS. EFFICIENT AND ECONOMICAL OPERATION ASSURED THROUGH USE OF MICROSTAT TECHNICIANS HANDBOOK FURNISHED WITH EACH MICROFILMING UNIT. ACCESSORIES FOR PROCESSING AND INSPECTING MICROFILM AVAILABLE. PRICE: MICROSTAT MODEL J-7 B MICROFILM CAMERA-ENLARGER-PROJECTOR, SOLD SUBJECT TO PRIOR SALE AND COMMITMENTS, $4950.00, FOB NATIONAL HEADQUARTERS.

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*ON CAMERAS FITTED WITH 50MM LENS APPROXIMATELY $50.00 EXTRA. NORMAL COVERAGE 24 BY 36 INCHES.

Southern Pacific Comp
Westinghous Electric & Manufacturing Compan
Fairchild Aviation Corporation
American Flange & Manufacturing Co.
Ingersoll-Rand Company
Talon, Inc.
Owens-Corning Fiberglas Co
The White Motor
Office of the Comptroller
Otis Elevator Company
The Pennsylvania Railroad
Schick
Worthington Pump and Machinery Corporation
Remington Arms Company
The British Broadcasting Corporation
Simplex Time Recorde
Chicago Flexible Shaft Compa
Lee Rubber & Tire Corpora
The Black & Decker M
Cooled Motors Corporation
Manning, Maxwell & Moore, Inc.
The Raybestos Divi of Raybestos-Manhattan
Sargent & Company
Simplex Time Recorder C
National Folding Box Company
The Vulcan Copper & Supply Co.
The Torrington Company
Dodge Manufacturing Corporation
Sonoco Products Company
American Optical Company
American Found pment C
The American Appraisal Company
Lock Joint Pip
Detroit Tap & Tool Company
Boots Aircraft Nut Corporat
Cross Gear & Machine Company
The Standard Register Company
George Daub and Associates
Scully-Jones and Company
Town of Stamford Connecticut
Beach-Russ Company
Buffalo Scale Company
Crescent Ink & Color Company
The Skinner Chuck Company
The Eastern Machine Screw Corporation
The Electric Controller & Mfg. Co.
C. I. Hayes, Inc.
Curtis & Marble Machine Co.
Merrick Scale Mfg. Co.
Northern Equipment Company
New York and Richmond Gas Company
Paragon Gear Works
F. J. Stokes Machine Co
Towmotor Corporation
Homelite Corporation
Seneca Falls Machine Co.
General Railway Signal Co
Air-Maze Corporation
Cleveland Public Library
Firemen's Insurance Company of Newark, New Jersey
Union County Savings Bank
Stamford Federal Savings and Loan Association
The Acme Wire Company
Precision Grinding Wheel Company, In
Baldwin Southwark Division
Century El
ol Works
Rockbestos Products Corporatio
Ray-O-Va
Bryant Chucking Grinder Company
Pennsylvania-Dixie Cement Corporation
Quaker Chemical Products Corp.
The Ohio
Boston Wire Stitcher Co
Hannifin Manufacturing Company
Detroit Universal Duplicator
Johnson Bronze Company
Enterprise Machine Parts
Fletcher Works
Dixie Machinery Mfg. Co.
Precision Castings Company, Inc.
The Marquette Metal Products Company
American Water Softener Co.
Davis Engineering Corporation
The Elwell-Parker Electric Company
Carling Turbine Blower Co.
The Chromium Process Comp

. . . Some of those war industries and government agencies using Microstat Service.

PICTURES ON PROBLEMS OF WOMEN IN INDUSTRY
Office, Secretary of War - Civilian Personnel Division

14 September 1943

EMPLOYMENT OF WOMEN

1. Women on the Job - Vocafilm - 424 Madison Avenue, New York City.
2. Defense for Children of Mothers Working for Victory - McFarland - 520 N. Michigan, Chicago, Ill.
3. Women in Industry - McFarland
    1 - Women soldiers of production
    2 - Women - Working safely
    3 - Women - Working for results
    4 - Mothers for children of women in Industry
4. Safely Yours (Women) - McFarland.

HEALTH

1.	PROOF OF THE PUDDING	Metropolitan Motion Picture Metropolitan Life Insurance Co. 1 Madison Ave., New York City
2.	THE MODEST MIRACLE	Standard Brands Inc. 595 Madison Ave., at 57th St. New York City
3.	MORE LIFT IN LIVING	National Dairy Council 111 North Canal St. Chicago, Ill.
4.	AMERICA LEARNS TO FLY	Motion Picture Bureau 347 Madison Ave., New York City
5.	HOME OF THE FREE	Dairy Council of St. Louis 4030 Chouteau Ave., St. Louis, Mo.
6.	MAKING ENDS MEET	Dairy Council of St. Louis 4030 Chouteau Ave., St. Louis, Mo.
7.	ENOUGH TO EAT	The Museum of Modern Art Film Library 11 W. 53rd St., New York City
8.	HIDDEN HUNGER	Office of Defense Health and Welfare Services, FSA, Graybar Bldg., New York City

14 September 1943

9.	VIM, VIGOR AND VITAMINS	Finer Films 407 Westminster Ave., Los Angeles, Calif.
10.	THE COLD BUG	McFarland and Associates 520 N. Michigan, Chicago, Ill.
11.	TAKE CARE OF YOURSELF	McFarland and Associates 520 N. Michigan, Chicago, Ill.
12.	THE MAGIC ALPHABET	McFarland and Associates 520 N. Michigan, Chicago, Ill.
13.	FOOD KEEPS YOU FIT	McFarland and Associates 520 N. Michigan, Chicago, Ill.

SAFETY

14.	OFF TO THE RIGHT START	Vocafilm Corp., 424 Madison Ave., New York City
15.	THERE'S A JOB TO BE DONE	Vocafilm
16.	ONE STEP AT A TIME	Vocafilm
17.	LET'S FACE THE FACTS	Vocafilm
18.	DO THE JOB RIGHT	Vocafilm
19.	THE MAN BEHIND THE MACHINE	Vocafilm

Graphic material available from the Women's Bureau consists largely of photographic material, showing women in various kinds of war jobs. We have a file of approximately two thousand such pictures. Readily available for distribution is a set of posters displaying 46 representative pictures of women on war work, a description of which is enclosed. A set is being mailed you under separate cover. We have an album of photographs stressing safety angles for women that may be borrowed for a limited period. Also on request we arrange a special album displaying pictures of women in a particular industry, such as aircraft, shipbuilding, steel, etc. Our illustrated leaflet on caps is enclosed; a similar one on safety shoes will be ready in the near future.

As to visual aids available from other sources we are enclosing a list from the Division of Labor Standards, some of which may be of interest in connection with women. We suggest further that you write to the U. S. Office of Education, Federal Security Agency, and ask for its List of Visual Aids on Vocational Training for War Production Workers. This includes a special list of motion pictures and slide films pertaining to women - these materials having been issued by both American and British agencies.

Other motion pictures on women that have come to my attention are:

"It's Your War Too" Produced by Bell Aircraft Co. of Buffalo.

"Danger-Women at Work"
"Tomorrow's Too Late Both produced by Vision Educational Productions - 509 - 5th Ave. N.Y.C.

You may also find it of interest to write to the Motion Picture Section of the Office of War Information, for information about Canadian and possibly some other American motion pictures in addition to the references we are submitting.

BELL & HOWELL COMPANY

J. H. McNABB
PRESIDENT AND TREASURER
A. S. HOWELL
VICE PRESIDENT
C. A. ZIEBARTH
SECRETARY

GENERAL OFFICES AND FACTORY
1801-1815 LARCHMONT AVE.
CHICAGO, U.S.A.

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LONDON
CABLE ADDRESS
"BEHOW"
CHICAGO
ALL CODES

WOMEN'S
AUG
DEPARTMENT

THE WAR DOES NOT CLOSE DOWN FOR THE SUMMER SEASON--
NEITHER DOES EDUCATION FOR WAR INDUSTRY OR ARMED SERVICES!

We don't know just how much of a "Summer School" schedule you will be operating this year. Certain it is that all factory training schools will be running. Many departments of industrial education are going to be working full time this summer, and pre-induction courses in summer schools everywhere will be crowded with boys facing an early army call. Many Visual Education Departments also will be working right through the hot season in order to take care of the needs of these special courses, as well as of the constantly expanding adult education programs sponsored by the various government agencies concerned with the home front.

Our FILMOSOUND LIBRARY will also keep working on full schedule, right through the summer. We just want you to know that whatever your film needs, and whatever the season, we are here, ready to help you take care of them.

The enclosed catalog supplement is of interest particularly to instructors in war industry and pre-induction courses. We have about 4000 other pictures, of every type, that will take care of other needs. Recreation, morale, civilian defense, religious, and a vast number of general educational and entertainment subjects are at your call.

Make up your schedule now, for immediate summer needs, and for the coming fall too. There is a handy order blank enclosed. If you have any film problem that is not covered in the enclosed material, please submit it, in detail, and we will do our best to help you meet it.

Cordially yours,

BELL & HOWELL COMPANY...-

Wm. F. Kruse

Manager
Films Division
Sales Department

Please reply to:
WFKruse/ebg
Enc.
1943-A Suppl. - Order blank.
1943-C Suppl.

ESTABLISHED 1907

YOUR BEST GUIDE

to every type of film service

The Bell & Howell

FILMOSOUND LIBRARY

One single, comprehensive source, offering over 3000 films of every type — recreational, educational, religious, patriotic — carefully selected for non-theatrical audiences, and serviced to highest professional standards. Large, illustrated catalogs free on request to 16mm. projector owners interested in film rental and purchase. Moderate rentals, convenient and satisfying service.

IMPORTANT SAVINGS are realized by patrons using our *Annual Service Agreement.* A commitment to a minimum quota of only six feature programs, or only *40 reels of short subjects* in a whole year, qualifies for the following savings:

(1) Up to 50% reduction on shorts, under special flat rates: Black-and-white sound $1 per reel, silent 75 cents, color $2. This applies to all but religious and certain other subjects on which rental rates are fixed by source.

(2) Reduction of $2.50 on each feature cataloged at $10 and up; customer option of $7.50 flat rate or $1 per reel charge on features cataloged at less than $10.

(3) Free shorts, of our selection, sufficient to extend feature into a 1½ hour minimum show. (Shorts are charged for at $1 per reel rate with lower-priced features, but no complete program in this range will cost more than $7.50.)

To qualify for these savings, sign up for the Annual Service Quota, by checking the proper square in the order blank below:

FILM RENTAL ORDER

Enter my order for the following rental films at the rate checked:

☐ Annual Service Quota ☐ Catalog Rate

TITLES	PLAY DATE	HOUR	RATE	SECOND CHOICE	RATE

SUBSTITUTIONS (Check one)
- ☐ At Library's discretion
- ☐ Only similar subject
- ☐ Only at same price
- ☐ Not at all: this program or none

MOUNTING—NO EXTRA CHARGE (Check here)
- ☐ Only 400 ft. reels
- ☐ Only 1600 ft. reels
- ☐ Shorts first ☐ Shorts last
- ☐ No preference

SHIP TO____________________ (Institution or firm)

Personal attention of______________ Title or Position______________

Street Address______________ *Telephone No.______________

City______________ State______________

CHARGE TO______________ (*Terms:* C.O.D. unless special credit terms arranged in advance)

SPECIAL SHIPPING INSTRUCTIONS______________

NOTE: Express is preferred unless location has only parcel post connection. Advise when awkward train schedules make extra shipping time allowance necessary. Every effort is made to assure arrival of films well before showtime, but we cannot assume responsibility for undue traffic delay.

Customer's signature______________ Address______________

*If private home without listed phone, give phone-owning reference.

Dealer's signature______________ Address______________

Fill out other side also. Date______________

Customer and Dealer Hereby Affirm That They Have Read and Agree to Regulations on the Reverse Side

APPLICATION FOR LOCATION APPROVAL

Applicant named on reverse side hereby proffers request for use of Universal and other restricted films at the following location:

Name and description of place where films are to be shown:____________________

____________________Average attendance____________Admission____________

Address____________________City____________________State____________

Character of audience: Private home ☐ School ☐ Church ☐ Armed Services ☐ Hospital ☐ Factory ☐

Club membership ☐ Shut-In Institution ☐ Theaterless Town ☐ Other____________

How far to nearest movie theater?____________Name of theater____________

First picture wanted: Title____________Date____________Hour____________

Reasons why showings would not conflict with theater business____________

Actual total enrollment, if a small school____________ (Schools desiring to use Universal features during school hours, and exclusively for school audiences and purposes, may apply for special sliding scale, based on attested enrollment. For single bookings, schools with less than 251 pupils—$12.50; 251-500—$15; over 500—$17.50. Where a quota of six or more per year is contracted for, these rates are reduced by $2.50 per program. This rate applies *only* to Universal features cataloged at rates higher than would be called for under the sliding scale.)

CONTRACT STIPULATIONS

Governing film rental order on reverse side

In applying for and accepting film service from FILMOSOUND LIBRARY, patron expressly accepts and agrees to the following stipulations:

On *all* film rentals

(a) Films will be used only by original renter, at place and on date booked, except where express authorization is obtained in writing, from Filmosound Library, in advance, for other types of use.

(b) Films must not be retained beyond play-date, and must be returned in good condition, prepaid, in original containers and on reels of B&H make except when received on non-standard reels. Delayed return shall be subject to demurrage charges of 50% of base rental for each day; damage beyond normal wear, and substitution or loss of reels or accessories, are to be paid for at prevailing rates.

(c) Films are never to be cut except in blank leader. Splices are permitted only in case of accidental breakage, and all pieces must be returned with print. Borrower guarantees against copying, removal, or other unauthorized use of films.

On *Annual Service Quotas* Contracts

(d) The minimum quota is definitely agreed to by patron, in consideration of the reduced rental rates thereby obtained. Patron agrees that if he fails to rent at least six features, or forty shorts, from the Filmosound Library within a period of one year from date of this agreement, all completed bookings shall be subject to rebilling at regular catalog rates, and that such balance will be paid immediately by renter.

(e) Where possible, complete quota schedules are to be booked in advance, but intermittent bookings can be made against the annual quota, with reasonable advance notice, as required.

On *Universal* and other *Prior Location Approval* Restricted Films

(f) In addition to the information given on the reverse side of this sheet, applicants for rental use of Universal and other restricted pictures on which prior location approval is required, must fill out the blank below in fullest possible detail. About two weeks is usually needed to "clear" a location, during which time the use of unrestricted film will tide over the applicant. Where the locality has not previously been rejected, temporary service may be extended schools pending decision. Films cannot be used in situations directly competitive with established motion picture theaters, and can be shown only in accord with the conditions described in the application below, on the basis of which approval is granted. Private home bookings call for phone numbers or reference having listed telephones. Advance approval is required for short subjects. Service may be ordered discontinued at any time, without liability to Library. In the event of unauthorized showings, in violation of conditions herein set forth, borrower is liable to Library to the extent of $50 for each violation, as liquidated damages.

INFORMATION, PLEASE!

We are interested in FILMOSOUND LIBRARY CATALOGS:

	WE NOW HAVE	PLEASE SEND
Recreational		
Educational		
Religious		
Supplements		

Our projector: Make____________Sound____Silent____

Obtained from____________________

About when?____________It is operating satisfactorily____

Unsatisfactorily____We now obtain film service from the Filmosound Library____(Yes—No) Comments on such service____

____

Other film sources patronized____________________

____

My use of motion pictures is primarily as checked below:

____(a) Entertainment features:
____(b) Educational features:
} ____Top quality—$15 to $25
____Medium type—$10 to $15
____Lower price bracket—$5 to $10

____(c) Classroom teaching

____(d) Private home entertainment

____(e) Church or other special uses____________________

Be sure to fill out opposite side of this blank also.

BELL & HOWELL FILMOSOUND LIBRARY

716 North LaBrea Avenue
Hollywood

1801 Larchmont Avenue
Chicago

1221 G Street N. W.
Washington, D. C.

30 Rockefeller Plaza
New York

Branches at: Boston; Philadelphia; Denver; Ft. Lauderdale; Portland, Maine; Cleveland; Seattle; Baton Rouge; Birmingham; Providence; Toledo; San Francisco; St. Louis; Minneapolis; Detroit; Washington, D. C.; London

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SUPPLEMENT—1943-A

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Dealer representatives everywhere

NO NEW GENERAL CATALOG FOR 1943

To conserve paper for essential war purposes, the FILMOSOUND LIBRARY has refrained from the customary general revision and publication of its annual rental film catalog. Instead, this year, we will issue a periodical series of functional supplements. This issue, 1943-A, is devoted entirely to motion pictures designed to serve the

PRE-INDUCTION AND PRE-FLIGHT COURSES

with which our schools will primarily concern themselves, this year, in line with Education's major war service. These films are grouped under definite subject headings.

A later supplement will be devoted to **Civilian Defense films,** for training and morale work. Others will deal with general educational and recreational subjects.

We urge all our patrons to take good care of their 1942 general catalogs, and to use them consistently in selecting their general FILMOSOUND LIBRARY programs. Our resources are greater than ever—well over 3000 films of every type await your call. If you do **not** now have our general catalogs SEND FOR THEM AT ONCE. These two big, illustrated film books—RECREATIONAL and EDUCATIONAL—are free to sound projector owners, and to interested film renters, sound or silent. There is no obligation.

A condensed summary of our money-saving "Annual Service" arrangement is given on the last page of this supplement.

FILM SERVICE *for* WAR SERVICE

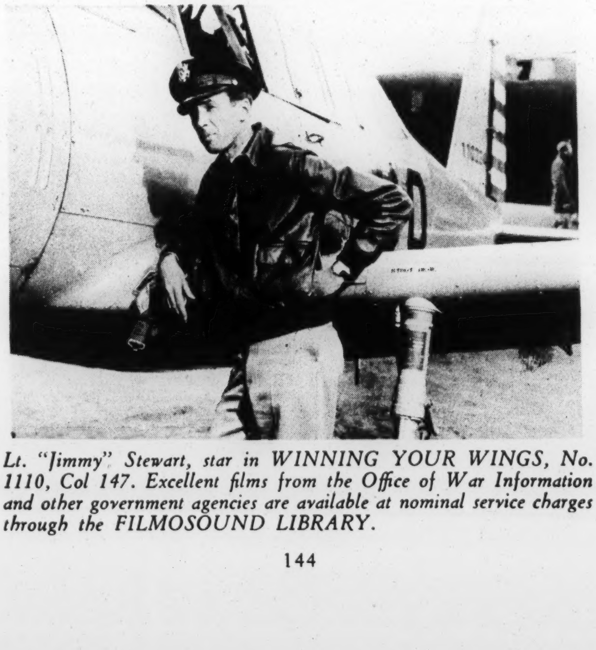
Like every other industry essential to our war effort, our FILMOSOUND LIBRARY has been war-conditioned for maximum service on every front. Our entertainment films cheer the fighting Marines and other armed forces in a hundred combat areas, and also keep up civilian spirits in recreational use on every home front. Our educational films serve many and varied fronts in scores of ways. Our distribution facilities are used by many government film services—Office of War Information, Coordinator of Inter-American Affairs, Office of Civilian Defense, and many others, old and new. Among these older agencies, now streamlined for war service, is the United States Office of Education. The USOE films on machine-shop training proved so useful to our industrial war front, that its visual education program has been greatly expanded, both in the direction of the production of many more films of its own, and in that of distributing educational films originally produced for the armed forces and other government agencies. The FILMOSOUND LIBRARY offers all these films, and many others, as another phase of its war service.

FILM AIDS FOR PRE-INDUCTION TRAINING FOR ARMED FORCES, CIVILIAN DEFENSE AND WAR INDUSTRY

A new series of training films, originally produced solely for Army Air Force and Navy use, has now been released for civilian training purposes, to provide additional visual aids for the new pre-induction courses worked out jointly by the War Department and the Office of Education. These courses are to be given throughout the country, in the Junior and Senior years of High School, and in their equivalent night technical courses and adult education programs. The bracketed numbers immediately following the titles in this supplement refer to course outlines published by the War Department and USOE, viz.: Electricity 101, Machines 102, Shop Work 103, Radio 201, Automotive Mechanics 202.

Of this great project for the war-conditioning of school work, Henry L. Stimson, Secretary of War, has said: "No greater immediate contribution can be made by the schools of the Nation toward winning the war than to give our youth the basic knowledge and skills needed for modern combat."

Continued, Col. 147



Lt. "Jimmy" Stewart, star in WINNING YOUR WINGS, No. 1110, Col 147. Excellent films from the Office of War Information and other government agencies are available at nominal service charges through the FILMOSOUND LIBRARY.

John W. Studebaker, Commissioner of Education, in the same foreword to the official pre-induction courses, wrote: "All our resources must be employed to beat the Axis powers to their knees. Especially must the manpower of the nation be marshalled for service either in the armed forces or in essential industries and occupations. . . . Mastery of these course materials on a pre-induction basis by thousands of youths will enable the Army to cut the post-induction training time necessary to insure the superior competence of our men in modern mechanized warfare. The courses may thus help to preserve the lives of thousands of soldiers. Let it never be said that any soldier's life was ever forfeited because we failed to do our part to provide him with adequate training."

The supreme value of the motion picture for training, in specific skills as well as in fundamentals, is now attested by every branch of our armed services, as well as by countless thousands of civilian educators. Commissioner Studebaker calls on all engaged in training to "make the widest possible use of training motion pictures to speed up the learning process." The FILMOSOUND LIBRARY provides an easy, economical road by which every school and every industrial training agency can get consistent and ready access to these new teaching aids.

Unless otherwise indicated, all films are 16mm. non-inflammable, **sound-on-film** motion pictures. They can be run on any 16mm. **sound** projector. Their very moderate rental or service charges, plus transportation both ways, are paid by the borrower. No charge is made for time consumed in transportation. Under these conditions no one with a proper use for these films should have to do without them. Details on charges, shipping, ordering, etc., are given on the last page.

Sources are indicated in brackets at the end of the descriptions—(USAF) identifies films originally made for the U. S. Air Force, (USN) Navy, (USOE) Office of Education, whereas (Castle) or (Bray) or (B&H) etc., identify private sources. Numbers next to such source letters are Army-Navy identification numbers. Films double-starred next to 50 cent service charge, are reduced to 25 cents when ordered additional to another such "50c**" film in the same shipment. Films marked § next to price, are sent without service charge when ordered with regular rental films. The letter "X" before a film number always identifies a **silent** film. The letter "C" in front of a number indicates that this is a **color** film.

For the convenience of teachers, films are grouped under subject matter headings regardless of source.

Aviation

"Number One" in national defense priority rating, and in student and popular interest also, stands Aviation. It therefore stands "Number One" in the volume of training film made available by War and Navy Departments for pre-induction courses. In the following pages, our aviation films are grouped according to purpose—Orientation, Theory and Design, Structure, Engines, Propellers, Science Background. Other sections of this supplement deal with Navigation, Weather, etc.

GENERAL ORIENTATION

AIRLINER

No. 494 *20 min.* GHYJT *$3*

The indispensability of air travel in modern business life is made clear and the operation of the intricate, almost uncanny, controls of the modern airship fascinatingly explained. Recent Hollywood production, especially for educational use.

Basic industrial processes clearly shown and interrelated with training in specific vocational skills. Scene from OWI film, ALUMINUM, No. 1079.

ALUMINUM

No. 1079 *9 min.* *Service Charge 50c***

Bauxite ore becomes alumina, then aluminum sheeting, and finally a fighting plane. (OWI)

BOMBER

No. 1080 *10 min.* *Service Charge 50c***

Manufacture of Martin B-26 bomber. An excellent documentary film, commentary written by Carl Sandburg. (OWI)

BUILDING A BOMBER

No. 1082 *20 min.* *Service Charge 50c***

How the B-26 U. S. Army medium bomber is built. Of special interest to engineering schools, and to our air minded youth, from 6 to 60. (OWI)

CAVALCADE OF AVIATION (Universal)

No. 2517 *18 min.* *$3*

Story of development of aviation from Wright Brothers to present. Historic flights mark milestones of progress, Byrd, Chamberlain, Lindbergh, Earhart. Gen. Billy Mitchell's prophecies of importance of air power borne out in difference between World Wars. A most timely and vital film of interest to all.

CONTACT

No. 3119C *3 reels, each 10 min.* GHYJT *(332)* *$1.50 per reel*

Marvelous British documentary film on the ultra-efficient airlines of the British Empire. For readier use, the Filmosound Library offers this outstanding film in three separate reels:

Reel I (No. 3119a) WINGS. Designing and construction of an airplane, and the relationship of aviation to other forms of transportation and industry.

Reel II (No. 3074) WINGS SPAN THE EARTH. Aviation ground work all over the earth to make international flying possible.

Reel III (No. 3103) WINGS OVER AFRICA. Cape Town to Cairo, to England by mail plane.

CURTISS-WRIGHT ANSWERS CALL FOR QUANTITY

No. F-65 *20 min.* *Service Charge $1§*

Trip through mass production airplane factory, work goes on twenty-four hours a day. Good demonstration of production control. Useful and instructive despite some advertising.

CURTISS-WRIGHT BUILDS FOR AIR SUPREMACY

No. F-64 *20 min.* *Service Charge $1§*

Greatly expanded factories produce amazingly intricate propellers on mass scale. Narration by Lowell Thomas. Some institutional plugging but very useful. *See also F-66, Col. 150.*

HISTORY OF AVIATION

No. 3139 *3 reels, each 10 min.* GHYJT *$2 per reel, $6 per subject*

Comprehensive pictorial history, from the first flight of the Wright Brothers to the flight of the China Clipper.

REEL I GREAT BEGINNINGS (1903-1929)
REEL II VISITORS FROM ABROAD (1928-1933)
REEL III FLYING TODAY 1935 to date)

HOW TO FLY

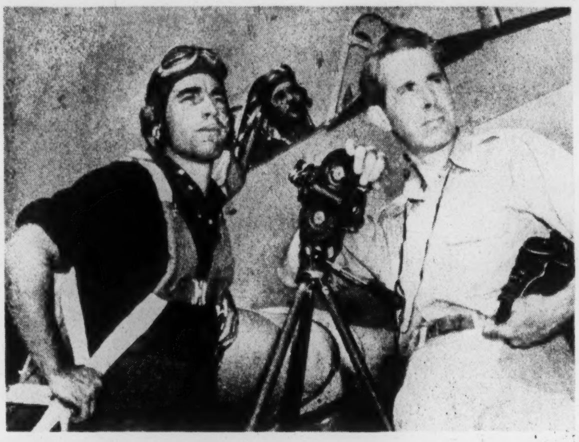
No. 779 *10 min.* GHYJT *$1.50*

Good non-technical description of essentials of flying an airplane—explanation of its various parts, instruments and controls. An instructor takes a novice into the air, and the plane is flown by means of dual controls. Early basic plane.

LOOK TO LOCKHEED

No. F60 *30 min.* *Service Charge $1§*

Good historical and process presentation of aviation industry. Superlative material outweighs some over-emphasis in advertising. (Lockheed)



Inspiring film record of training of our Air Cadets. An excellent assembly program, suitable for all types of audiences.

SKY DEFENDERS

No. 914 *Sound* *45 Min.* GHYJT *(532)* *$6*

No. C914 *Sound—Color* *(542)* *$12*

Canfield Cook, aviation authority and one of the youngest pilots in World War I, describes and pictures training of U. S. Army Air Cadets. Made in co-operation with Air Corps, it shows many spectacular flying scenes, including a simulated bombing flight in close formation, by up-to-the-minute fighting planes. (Further aviation films, Col. 100, 112.)

THE AUTOGIRO

No. 3137 *10 min.* GHYT *$1.50*

What keeps this unique plane aloft, how the blades turn and why they do not fold up. Autogiro in leisurely flight.

TARGET FOR TONIGHT

No. 1106 *49 min.* *(333)* *Service Charge $1.50*

A documentary film so outstanding that it received major (Warner) distribution theatrically, with the title often getting top billing on dual feature programs. Every step of an RAF bombing trip over Germany is clearly shown, and suspense is well maintained over one of the planes long delayed in returning. Quentin Reynolds, in Collier's, calls this "the finest picture to come out of the war." (Brit.-OWI)

WINNING YOUR WINGS

No. 1110 *18 min.* *(444)* *Service Charge 50c***

Bird's-eye view of how the United States Air Force is being built into the strongest and best trained in the world. Team work is the keynote, and Lt. Jimmy Stewart, ex-Hollywood star, appears in person and narrates the whole picture in inimitable style. Fine especially for high school. (OWI)

YOUTH TAKES TO WINGS

No. 3424 *Sound* *40 min.* *(433)* *$12.50*

Feature-length assembly program, highly interesting and instructive, especially helpful to schools and clubs engaged in building model planes to scale, for the Navy-USOE project. Endorsed by National Aeronautic Association. (Bray)

YOUTH TRAINS FOR AVIATION

No. 3425 *Sound* *10 min.* *$2*

Air-minded youth, giant reservoir of man- and brain-power for our "air-conditioned" nation, now coming into being. How schools and clubs are developing radical new types of aircraft.

THEORY AND DESIGN

AERODYNAMICS I—Properties of Air

No. 3428 *Sound* *8 min.* *$2*

Physics demonstrations of the mass and weight of air—comparison of behavior of objects in vacuum and normal air pressure, collapse by evacuation of metal can, how hardboiled egg can enter narrow-necked bottle, action of hurricane, and how man uses the energy of the wind. (Bray)

AERODYNAMICS II—What constitutes "Lift"

No. 3429 *Sound* *8 min.* *$2*

Bernoulli's principle. Air currents, moving at high velocity across different shaped objects; results of decreased pressure. "Lift" from blowing over top of wing surface. (Bray)

AERODYNAMICS III—Resistance and Streamlining

No. 3430 *Sound* *8 min.* *$2*

Influence of shape of object and speed. Air resistance made visible by dry-ice vapors. Wind tunnel reveals benefits of streamlining. (Bray)

AIR CURRENTS AND THEORY OF STREAMLINING

No. 3136 *10 min.* GHY T *$1.50*

Clarence Chamberlain, noted flyer, demonstrates behavior of air currents in smoke chamber, and their function in keeping a plane aloft. Then **Norman Bel Geddes,** applies modern theories of streamlining to the design of the ocean liner.

AIR FLOW

No. 5082 *18 min.* *$1.50*

Inertia, partial vacuum, pressure gradients, smoke streams are employed to illustrate turbulence, skin friction. Angle of attack, point of stall, drag, lift. Various types of wing form and cowling. What happens when ice forms. (Tech. H. S.-Col.) (USAF-160)

ESSENTIAL PARTS AND TYPES OF PLANES

No. 3427 *Sound* *10 min.* *$2*

Ingenious flying models demonstrate just what makes different types of aircraft fly. Specialized functions of various parts of plane, and of various designs, for specific purposes. (Bray)

FORCES ACTING ON AIR FOIL

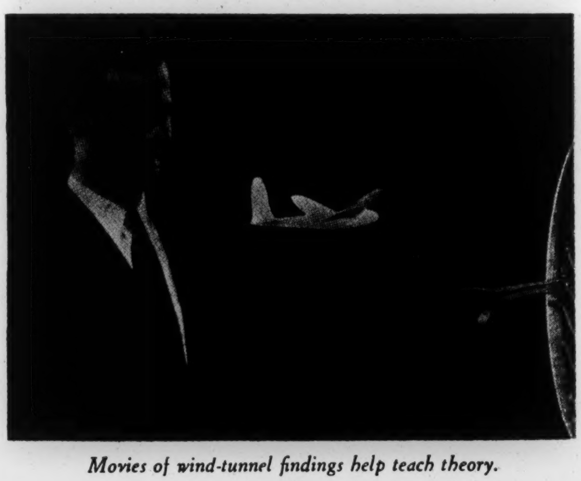
No. 5083 *27 min.* *$2.50*

Lift, drag, angle of attack, chord. How wind tunnels are used to measure forces. Relationship of lift, drag, wing area, wind velocity, thrust, weight. Quite technical but good for general theoretical introduction for pre-flight groups, mathematics classes. (USAF-161)

METHODS OF FLIGHT

No. 3426 *Sound* *20 min.* *$4*

Analysis of just how birds fly—and how man seeks to apply principles of bird flight in his own aircraft. Ornithopter, gliders, balloons, helicopter, rocketship. (Bray)



Movies of wind-tunnel findings help teach theory.

FLIGHT INSTRUCTION

A new series of flight instruction films are in production by Bray. The first six of these fourteen titles are promised for delivery Mar. 15, 1943, the balance to be announced later. Each is a 10-min. sound film, renting for $2.

AIRCRAFT AND HOW THEY FLY	*No. 3386*
MOTIONS OF A PLANE	*No. 3387*
FLYING THE TURN	*No. 3388*
STARTING-TAXIING-TAKEOFF	*No. 3389*
LANDING	*No. 3390*
ADVANCED MANEUVERS	*No. 3391*
AIRFOILS AND STREAMLINES	*No. 3392*
BERNOULLI'S LAW	*No. 3393*
FORCES ACTING ON A PLANE	*No. 3394*
STABILITY IN A PLANE	*No. 3395*
LIFT AND DRAG	*No. 3396*
TYPES OF AIRPLANES	*No. 3397*
WIND DRIFT	*No. 3398*
INTERCEPTION	*No. 3399*

AIRPLANE STRUCTURES

STRUCTURAL UNITS (Structures I)
No. 5065 *8 min.* *$1*

Materials and loads for which designed—stresses on fuselage, wings, landing gear, control surfaces. (Jr. H. S. to adult) (USAF-211)

WING CONSTRUCTION (Structures II)
No. 5066 *10 min.* *$1*

Considerations determining shape, chord and span. Spars and ribs. Thrust and drag. Outer panel, leading edge. Center section. wing tip. Built-in fuel tanks. Strength to meet stress. Compression, tension. (Jr. H. S.-Col.) (USAF-212)

DOPING TECHNIQUE
No. 5067 *10 min.* *$1*

Proper application of "dope" to airplane surfaces, by using hand brush and spray gun. (USN-66-J)

FUSELAGE (Structures III)
No. 5068 *8 min.* *$1*

Construction details, showing differentiation for air-cooled and liquid-cooled engines. Air scoops, flaps, bulkheads, trusses. (Tech. H. S.-Col.) (USAF-213)

CONTROL SURFACES (Structures IV)
No. 5069 *10 min.* *$1*

Definition of function and location of ailerons, rudder, tail flaps, wing flaps, vertical fins, elevators, horizontal fins, trim tabs, fabric envelope. (Jr. H. S.-Col.) (USAF-214)

ALIGHTING GEAR (Structures V)
No. 5070 *10 min.* *$1*

Functions and design of landing gear, brakes, and other parts. Retractable and fixed, conventional and tricycle types. Retraction inward, outward, backward. (Med. Tech.-H. S.-Col.) (USAF-215)

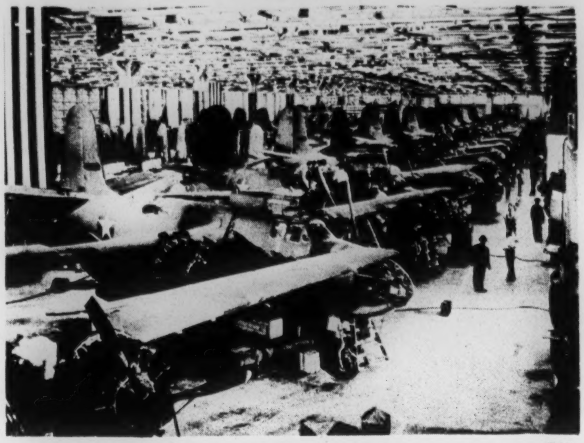
MANUFACTURING METHODS (Structures VI)
No. 5072 *26 min.* *$2*

Construction procedures as related to structural function. Excellent popular overview, fine for any audience. Can be augmented by several fine manufacturing process films listed under "Orientation," Col. 145. (USAF-323)

STATIC TESTING (Structures VII)
No. 5071 *10 min.* *$1*

Elastic axes of wings, torsional stiffness, negative and positive acceleration. Power-dive capability related to static tests. Wind-tunnel. Ruggedness tests for landing gears. General orientation and discussion of safety. (USAF-312)

ENGINES



Monster plane factories—NEWSPARADE 1942, No. 5204.

AMERICA—FIRST IN THE AIR
No. F66 *20 min.* *Service Charge $1§*

Curtiss-Wright film, narrated by Lowell Thomas. Shows how cylinder heads are molded and machined, 424 gears to each plane engine with over 8000 parts and over 50,000 inspections. Shrink fits via dry ice. Wright "Whirlwind" engine pulled down for re-inspection. *See also F64, 65, Col. 147.*

AVIATION ENGINE
No. 9168 *20 min.* YT *(333)* *$4*
No. X9168—Silent *30 min.* *3*

Entirely practical record of disassembly of airplane engine showing all working parts and what has to be watched for on an overhaul. Distinctly a shop training film, made at the Missouri Aviation Institute, a CAA approved school, for defense training.

MECHANISM TYPES
No. 5073 *37 min.* *$3*

General overview shows principles of the internal combustion engine, of various types—cylinders in "V," in line, opposite and radial. Carburetion, pistons, cam shaft. **Oiling system**—scavenger pump, strainer, breather, cooler, reserve tank. Hydraulic control of variable pitch propeller. Good for beginning aircraft engine mechanics and general aircraft engine orientation. (USAF-135)

CARBURETION
No. 5074 *37 min.* *$3*

Functions of essential parts of carburetor, and variations encountered in aircraft engines. Needs teacher supplementation. (USAF-137)

See also films on automobile engine, Col. 167.

PROPELLERS

AIR SCREW
No. 4828—Sound *18 min.* GYMT *(433)* *Service Charge 75c*

Manufacture of all-metal propellers from raw material to finished article, with explanation of "variable pitch" in theory and practice. Of primary interest in aeronautics and general shop classes, general science and vocational groups. (FFB)

AIRCRAFT PROPELLERS I
No. 5076 *18 min.* *$1.50*

Principles and functions that determine design. Types most generally in use. (USAF-246)

HYDROMATIC PROPELLERS
No. 5077 *17 min.* *$1.50*

Assembly, theory and operation of the Hamilton Hydromatic propeller. Ground checking. Feathering in actual flight. Landing. (USAF-451)

Electricity

ORIENTATION

STORY OF ELECTRICITY *(101-IA)*
No. 4139 *10 min.* *(323)* *$1.50*
Lodestone, magnetized iron, amber, the earth itself in gigantic field. Franklin's kite, 1752. First motor, 1832; Morse telegraph. Edison lamp, 1879. Commercial power plant, 1883. Wireless, 1898. Modern uses. (Knowledge Builders)

MAGNETISM *(101-IE)*
No. X9104—Silent only *12 min.* *$1.50*
(a) *Studies in Magnetism,* demonstrates natural magnet, permanently magnetized steel, electro-magnet, sensitivity of compass to magnetic influence. (b) *The Electric Bell,* shows one of most common applications of magnetism. (Bray)

ELECTROSTATICS *(101-IIA)*
No. 139 *10 min.* GHYT *$2*
Positive and negative electrification, role of insulators and conductors, movement of charges in the electroscope. Compton's electrometer, static machine, and Nature's display—lightning. (Erpi.)

ELECTROCHEMISTRY *(101-III)*
No. 4377 *10 min.* GHYT *$2*
Electrolytic decomposition of hydrogen chloride and the production of electric current from the reaction between chlorine and hydrogen at platinum electrodes. Applications in storage battery, electroplating, electro-refining, and production of caustic soda by electrolysis of sodium chloride. (Erpi)

SOUND WAVES AND THEIR SOURCES
No. 159 *10 min.* GHYT *$2*
Several types of sources of sound. Transmission of sound waves through air. Frequency, amplitude, wave length, fundamentals, harmonics, vividly pictured with acoustic accompaniment. (Erpi)

Aviation, Continued

HYDRAULIC GEAR

AIRCRAFT HYDRAULIC SYSTEMS *(102-V)*
No. 5039 *16 min.* *$1.50*
Principles and their application to landing gear pumps, reservoirs, valves, etc. Specific application to BC-1 plane. (USAF-174)

AIRCRAFT HYDRAULIC BRAKES I *(102-V)*
No. 5078 *21 min.* *$2*
Principles of operation of hydraulic brakes as used on aircraft. Energy transformed into heat. Integral and manual operation of brakes. (USAF-162)

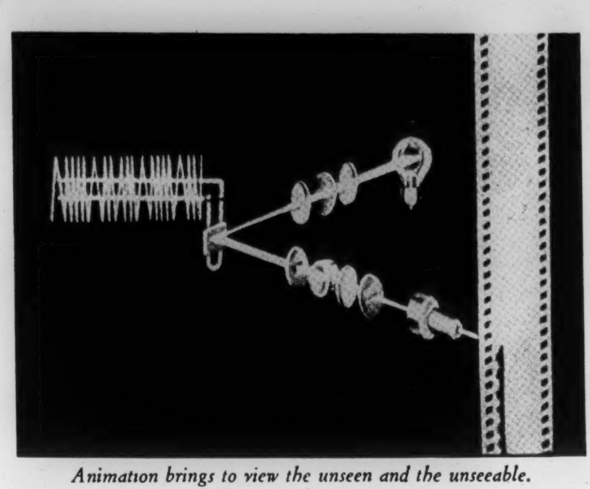
AIRCRAFT HYDRAULIC BRAKES II *(102-V)*
No. 5079 *31 min.* *$3*
Types, construction and operation of principal types of commercially made hydraulic brakes and brake shoes. Single Servo, Double Servo, revolving disc. Rather specialized, but very instructive for mechanics and advanced students. (USAF-305)

This is NOT our Complete Film Catalog

More than 3000 films of every type are described in our separate catalogs of Educational and Recreational films. If you rent or buy 16mm motion pictures you should have them always handy for reference. They will be sent free to anyone who needs them.

Of special interest is our "Utilization Digest," indexing over 1000 educational films in terms of type, quality, age-level and subject matter area. It also is free.

The Filmosound Library offers one single, comprehensive source of motion pictures, selected for quality.



Animation brings to view the unseen and the unseeable.

HOW MOTION PICTURES MOVE AND TALK *(IX-C3)*
No. 865 *10 min.* *Service Charge $1* *Free to schools*
No. X865—Silent 15 min.
Harnessing of electricity to task of recording and reproducing sound films.

SOUND WAVES *(101-XIID)*
No. X9106—Silent only *11 min.* *$1*
(a) *Actual Photography of Sound Waves,* made at Cornell University, demonstrating principle underlying wireless communications. (b) *How the Telephone Talks,* practical application, with animated technical drawings. (Bray)

TELEPHONE LINE CONSTRUCTION
No. 1031 *19 min.* *Service Charge $1*
Good vocational presentation of how wires are strung through our National Forests, with emphasis upon good craftsmanship even for temporary installations. (U. S. D. A.)

IGNITION

AIRCRAFT IGNITION
No. 5080 *28 min.* *$2.50*
Principles of electricity as applied to the ignition system of an airplane engine. Excellent demonstration and definition of basic concepts—current, voltage, polarity, magnetic field, induction, spark coil, generator. (USAF-136)

AVIATION SPARK PLUG
No. 5075 *25 min.* *$2*
Care, adjustment, cleaning and assembly. Altitude stresses. Abnormal temperatures. Highly specialized film, intended mainly for mechanics, and for serious student groups after specific skills and thorough grounding. (USAF-566)

RADIO

AIRPLANE RADIO ANTENNAS *(201-I)*
No. 5081 *12 min.* *$1.50*
Creation and behavior of radio waves. Static field, magnetic lines of force, high frequency generators, waves in space, reflection of radio waves. Skip distance, ground waves, fading. (USAF-474)

RADIO AIDS TO AERIAL NAVIGATION *(201-I)*
No. 5091 *30 min.* *$2.50*
How the beam works. Deviations and their causes. Twilight zones, bi-signal zones. Cone of silence and false-cone, cone marker. Most common errors in beam navigation. Weather reports. Radio compass, directional antennae, automatic compass. For best results show as introductory overview, then repeat in sections. (USAF-327)

Consider also AIR WAVES No. 5404, $1.50
TELEVISION No. 5400, $1.50

Navigation

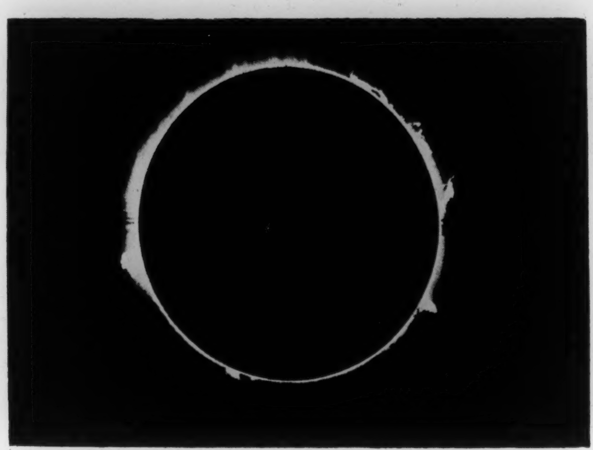
MAPS AND COMPASS

See also RADIO AIDS TO AERIAL NAVIGATION, No. 5091, Col. 152.

AERIAL NAVIGATION—Maps and Compass *(101-1)*
No. 5090 *14 min.* *$1.50*
General overview, comparison of types of projection, gnomonic, Mercator, Lambert conformal. Compass variations, magnetic pole. Deviations due to metal parts. Well demonstrated, readily understood. (USAF-245)

AIRWAYS FLYING
No. 5092 *31 min.* *$2.50*
Navigation by visible contact with ground objects. Reading airways maps, markers explained. Operations of air control center. Flight plans. Rules for passing planes, minimum altitudes, rules of road. Instrument failure. Orientation, usable down to Jr. H. S. level. (USAF-328)

STEREOSCOPIC MAPPING
No. 1065 *20 min.* GHYT *Service Charge $1*
How government contour maps are made by aerial photography, checked or pivoted upon reference points established in the old-fashioned "hard" way. (USDI)



Eclipse of sun at totality. Entire progress of total eclipse is shown in "Sun and Moon," No. 867.

CELESTIAL NAVIGATION

CELESTIAL NAVIGATION—Charts
No. 5086 *19 min.* *$1.50*
Gnomonic projections, Mercator charts, and Lambert conformal projections, demonstrated by pictures, maps and diagrams. (USN-83-b)

CELESTIAL NAVIGATION—THE EARTH
No. 5087 *15 min.* *$1.50*
Definition and determination of lines of longitude and latitude, explained in essentially non-technical way. (USN-83-a)

LOCATION OF POINTS ON CELESTIAL SPHERE
No. 5088 *19 min.* *$1.50*
The celestial sphere, position of the earth. Zenith, nadir, sidereal hour angle, local hour angle, bubble horizon. Broad coverage, advanced, excellent teacher aid. (USAF-290)

POSITION FINDING ON THE EARTH
No. 5089 *15 min.* *$1.50*
Overall principles, longitude and latitude, Greenwich hour angle, local hour angle, sidereal hour angle, celestial triangles. Use of tables to figure position. Astronomy, math, navigation. Broad, fast-moving, excellent teacher aid. (USAF-204)

ASTRONOMY

NAUTICAL ASTRONOMY
No. 5040 *22 min.* *$2*
Application of mathematics and astronomy to naval uses. (USN-83-c)

ROMANCE OF THE SKIES
No. X9099—Silent only *15 min.* *$1.50*
Science of astronomy dispels primitive fears. Comets explained, their orbits calculated by modern machines, excellent animation of changes in comet tail. Relationship earth, sun, and moon. Solar eclipse, corona, chromosphere. (Bray)

THE WORLD WE LIVE IN
No. 4129—Sound *10 min.* *$1.50*
No. X4129—Silent *15 min.* *1.00*
Our Earth and its place in the universe. The hemispheres, longitudinally and equatorially divided. Contents and oceans.

TRIP TO THE SKY
No. 4159 *10 min.* GHYT *$1.50*
The position of our Earth in the Universe. Measuring astronomical distances with telescope. A journey to the Moon Mars, Saturn, the Twin-star Alpha, and a glimpse of other worlds, many still in the making, millions of light years away. This film was awarded the Grand Prix (Paris) in scientific documentary class.

SUN AND MOON
No. 867 *10 min.* GHYJT *$1.50*
No. X867—Silent *15 min.* *1.00*
We visit Mount Wilson and Yerkes observatories, total eclipse of sun, chromosphere, prominences, sun-spots. Close-ups of lunar landscape, three possible explanations of the moon's distinctive ring mountains, why no men on the moon. Condensed from Ruroy Sibley's "Seeing the Universe." Carefully authenticated and popularly presented. of interest to all.

IF WE LIVED ON THE MOON
No. X9100—Silent only *16 min.* *$1.50*
(a) Lunar photography effectively combined with animated drawings, gives approximate idea of "living conditions" on Earth's satellite. Combined with (b) "Tides and the Moon," showing effect of attraction of sun and moon upon our seas.

PLANETS—ASTEROIDS—COMETS
No. 876 *10 min.* GHYJT *$1.50*
No. X876—Silent *15 min.* *1.00*
Comparison of Ptolemaic and Copernican theories of universe. The solar family. Phases of Venus. Parade of seasons on Mars. Giant Jupiter and its moons, in motion. Beautiful ringed Saturn, its changing aspects. Three new members, how discovered. Halley's and Brook's Comets. The expanding universe. "Popular Science" treatment of interest to all. (Ruroy Sibley)

THE EARTH AND ITS SEASONS
No. 483 *11 min.* GHYJT *$1.50*
Excellent teaching film shows the four seasons as we know them, and then explains reasons for cyclical change by animation cinematography.

WORLD'S LARGEST TELESCOPE REFLECTOR
No. 882 *10 min.* GHYT *(422)* *$2*
A fascinating scientific photographic record of the grinding and polishing of the newest 200-inch telescope reflector, at the California Institute of Technology observatory on top of Palomar Mountain. (Glenn Edgerton)

LIGHT WAVES AND THEIR USES
No. 4520 *11 min.* *(544)* *$2*
Principles of reflection explained by action of mirrors of varying surface form. Refraction—in optical lenses and in the human eye. Interferometer demonstration of principles of interference, and various applications. (Erpi)

IDENTIFICATION

AIRCRAFT IDENTIFICATION, WEFT SYSTEM OF

No. 5093 15 min. $1.50

Approaching aircraft are identified by observation of wings, engine, fuselage, and tail assembly—the first letters of which create the word "WEFT," used to designate this system of spotting. (USN-40-a)

SURFACE VESSEL IDENTIFICATION

No. 5094 10 min. $1

The Navy's "3-point" system of identifying warships is demonstrated by models. Masts, stacks and turrets furnish the key. (USN-40-b)

IDENTIFICATION BY SPECIAL CHARACTERISTICS

No. 5095 10 min. $1

The "Weft" system applied to identification of aircraft and surface vessels, with emphasis on special characteristics. (USN-40-c)

WEATHER

PRIMARY CIRCULATION

No. 5084 19 min. $1.50

Modern weather theory on structure of a storm, primary wind source equatorial convection currents, split at subtropical belt, formation and behavior of polar fronts, effect of earth's rotation, reasons for prevailing winds, relationship of weather to aviation. (USAF-133)

ATMOSPHERIC WAVES

No. 5085 15 min. $1.50

Technical presentation, entirely by animation photography, of modern weather theory as to behavior of opposing waves, pressure areas, cold and warm fronts, rising masses, clouds, precipitation, shifting storm centers. (USAF-134)

CLOUDS

No. 1002 10 min. Ghyjt *Service Charge $1*

Various types of cloud formations, how they come into existence, and their significance in weather forecasting. Popular, scientific presentation. (U.S.D.A.)

CLOUDS AND WEATHER

No. 1023 6 min. $1

Shorter, classroom version of No. 1002. (American Film Center)

AIR PRESSURE AND GRAVITATION

No. X9103—Silent only 14 min. $1.50

Combines three Bray physics films: (a) *The Air Pressure in Which We Live,* lab demonstration of the collapse of an evacuated metal can, and the drawing of a shelled hardboiled egg through a narrow bottle neck by vacuum suction. (b) *Peculiarities of Air,* further lab experiments show water boiled with ice, cotton burned with liquid air. (c) *Gravitation of Liquids,* first two, then five liquids are shown to possess definitely different densities.

MATHEMATICS

ANALYTICAL BALANCE TECHNIQUE *(102-II-2)*

No. X9204 Silent 30 min. (320) $3

Details of manipulation and mathematical techniques involved in proper use of Analytical Balance. Produced and tested at Wright Junior College, Chicago, by Dr. S. A. Durban. Supplemented by five 2" x 2" lantern slides.

ORIGIN OF MATHEMATICS *(102-II)*

No. 4324 10 min. (333) $1.50

Various types of mathematical symbols and processes employed by succession of ancient peoples — cave dwellers, Egyptians, Babylonians, Greeks, Romans, Arabs, Indians.

RECTILINEAR CO-ORDINATES

No. 4131 12 min. Yt *$1.50*

Exceptionally lucid demonstration of mathematical principles and procedures ordinarily very hard to grasp. Descartes' theorem, point, line, plane, and solid; number-scale, co-ordinates, plus and minus, axes, and 3-dimensional locations and relationships, explained by John H. Lewis. *See also NAVIGATION, Col. 153, and PRECISION MEASUREMENTS, Col. 162.*

EINSTEIN'S THEORY OF RELATIVITY

No. X9051—Silent only 30 min. $2

Simple photographic proof of relativity of many of our basic concepts of time, weight, space, size, direction and speed. Elementary, general background.

Seamanship

USEFUL KNOTS

No. 5096 22 min. $2

Overhand, slip, square, sheet bend, two half-hitches, slippery hitch, clove, and rolling hitch. (USN-70)

FLASHING LIGHT SIGNALS

No. 5097 13 min. $1.50

Sending and interpretation of light flash communication, of interest to pre-induction courses and scout groups. (USN-73)

OUR FIRST LINE OF DEFENSE

No. 4865 Sound 10 min. Ghyt *(333) $1.25*

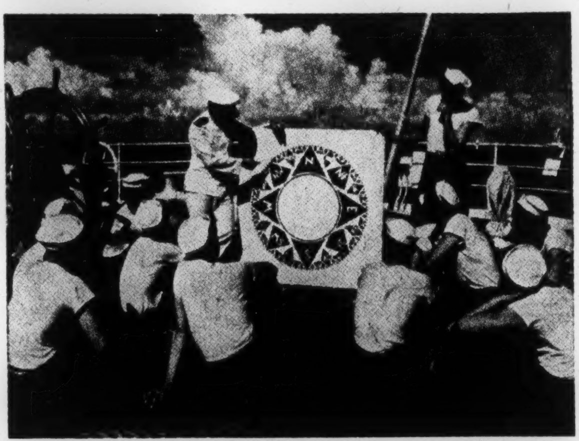
No. X4865 Silent 15 min. 1.00

Stirring story of the role of United States Navy—its various types of ships and their functions. Action pictures taken during maneuvers under wartime conditions.

SERVICE AFLOAT

No. 3423 20 min. Ghyjt *$2.50*

An inspiring picture of the services rendered and dangers faced by the U. S. Coast Guard while at sea. Patrol duty, help for fishing fleet, rescue of barges in terrific storm, hurricane and flood relief, iceberg watch, destroying derelicts, seal patrol, suppressing smugglers, Moro Castle disaster. (Bray)



Learning to "box" the compass. MEN AND THE SEA, No. 1111.

MEN AND THE SEA

*No. 1111 10 min. (333) Service Charge 50c***

Training of the men of the U. S. Merchant Marine, who get the guns to the place where they're needed. Important and interesting to all audiences concerned with training opportunities, schools, labor groups. (OWI)

Continued Col. 157

Boat-drill and other practical seamanship is demonstrated in these government films. No. 1111. Consider also CALL OF THE SEA, No. 2447-5/43, $1.50 and PILOT BOATS No. 5409, $1.50.

CRUISING WITH THE COAST GUARD (Universal)

No. 2394 *10 min.* *(233)* *$1.50*

Functions of the "Guard" in peace and war, training topped by South American cruise, with pleasant visits ashore.

COAST GUARD IN THE ARCTIC

No. 3421 *10 min.* GHYJT *$1.50*

The cutter "Northland" on its annual cruise, from Oakland to the "farthest north" of Alaskan settlements. Medical, adjudiciary, and other services rendered to whites and natives alike. Interesting studies of Eskimo village life, and of difficult navigation through ice fields. (Bray)

INTERNATIONAL ICE PATROL

No. X9033—Silent only *15 min.* *$1*

Made by Lieut. Commander N. G. Ricketts, U. S. Coast Guard, and originally released by Harvard University Film Foundation. Showing methods used to protect shipping lanes from iceberg dangers.

LAKE CARRIER

No. 1109 *10 min.* *(434)* *Service Charge 50c***

The importance of transportation on the Great Lakes as a military highway that supplies the great steel furnaces of the Middle West so that the soldiers may have the weapons essential for victory. Inspiring and educational narrative by Frederic March. (OWI)

ATLANTIC PATROL

No. 5005 *Sound* *10 min.* *(333)* *$1.25*

What it means to cross the ocean in a freighter under Canadian and British naval convoy.

HEROES OF THE ATLANTIC

No. 5019 *Sound* *19 min.* *(332)* *$2.50*

Loading and other preparations for a convoy crossing, from a Canadian port. Good companion reel to No. 5005 above.

NORTH SEA

No. 4239 *28 min.* GHYJT *$3*

Thrilling, educational demonstration of the perils faced by the trawlers in the North Sea, the importance of radio communication, concentration of all facilities to the work of rescue at sea, and finally the self-sufficiency of these staunch craft, completing repairs in mountainous seas just as rescue ships draw near.

SEA GOING THRILLS

No. 4116 *11 min.* GHYJT *$1.25*

No. X4116—Silent *15 min.* *1.00*

"Around the Horn" in a windjammer encountering porpoise, whales, marlin, and sea lions. Thrilling storm photography.

BRITISH NAVY

Films showing applied seamanship are an excellent means of vitalizing study courses touching upon this field. Description of contents of the following selected films can be obtained from special supplement giving complete listing of several hundred films released through the Filmosound Library by the British Ministry of Information.

CORVETTES

No. 1220 *8 min.* *Service Charge 50c***

Action aboardship on convoy duty, high seas, and a fierce battle against dive-bombers. (Brit.)

FOOD CONVOY

No. 1221 *11 min.* *Service Charge 50c***

Destroyer crew discusses their own work, and that of the heroic merchant seamen, as they sail to bring them in.

FIGHTING FRENCH NAVY

No. 1307 *9 min.* *Service Charge 50c***

Ships and men that refused to follow Vichy into Hitler camp.

GRANTON TRAWLER

No. 4796 *11 min.* *Service Charge 50c***

Hardy Scottish fishermen defy storm and war. (Brit.)

H.M. MINELAYER

No. 1222 *8 min.* *Service Charge 50c***

British seamen calmly handle risky routine assignment.

H.M. MOTOR LAUNCHES

No. 1223 *10 min.* *Service Charge 50c***

Mass production of light craft, and training of crews. Action against enemy plane and submarine. (Brit.)

MEN OF THE LIGHTSHIP

No. 1251 *26 min.* *Service Charge 75c***

Tragic story of Nazi attack that sinks East Dudgeon lightship, and of struggle of survivors to reach shore in open boat.

NAVAL OPERATIONS

No. 1235 *9 min.* *Service Charge 50c***

Interrelation of 101 different naval craft and aircraft illustrated in strategy that led to defeat of the "Bismarck" and of the "Graf Spee." (Brit.)

ROYAL AUSTRALIAN NAVY

No. 1209 *7 min.* *Service Charge 50c***

Training in essential battle skills, engineering, signals, torpedoes and gunnery, on school ship "Cerebus," and their application under battle conditions. (Brit.)

SEA CADETS

No. 1299 *9 min.* *Service Charge 50c***

Naval training ashore for youngsters, flag signals, cutlass, steam, charts—then applied on school ship.

S.O.S.

No. 1277 *13 min.* *Service Charge 50c***

Life-boat crew in fishing village in Cornwall. (Brit.)

TROOPSHIP

No. 1339 *10 min.* *Service Charge 50c***

Precautions and handling of transport vessels. (Brit.)

AMERICAN NAVY

MIDWAY & CORAL SEA BATTLES	*Sound*	*No. 4632*	*$1.25*
	Silent	*No. X4632*	*1.00*
NAVY BLASTS MARSHAL ISLANDS	*Sound*	*No. 4640*	*1.25*
	Silent	*No. X4640*	*1.00*
OUR FIRST LINE OF DEFENSE	*Sound*	*No. 4865*	*1.25*
	Silent	*No. X4865*	*1.00*
U. S. CARRIER FIGHTS FOR LIFE	*Sound*	*No. 5215*	*1.25*
	Silent	*No. X5215*	*1.00*
U. S. MARINES IN ACTION	*Sound*	*No. 4897*	*1.25*
	Silent	*No. X4897*	*1.00*
YANKS INVADE AFRICA	*Sound*	*No. 5212*	*1.25*
	Silent	*No. X5212*	*1.00*

War Industry

THE ARM BEHIND THE ARMY

No. 1126 *10 min.* *Service Charge 50c***

Importance of industrial production line to success on the battle-front. Industrial resources of the Axis, swollen with conquest. America's answer. Made by War Department especially to show importance of the industrial front. (OWI)

BUILDING A TANK

No. 1105 *20 min.* *(433)* *Service Charge 50c***

Tremendously impressive evidence of the might of our production army, new factories, machines and manpower turns out land battleships in record time. Proving ground test pictures. Fine for schools and morale meetings in factories.

TANKS

No. 1102 *10 min.* *(333)* *Service Charge 50c***

Building and uses of the famous M-3 medium tank, a real lift to any audience to see how our production plants are forging the armaments of victory. Effective narration by Orson Welles.

CAMPUS ON THE MARCH

No. 1130 *19 min.* *Service Charge 50c***

Contribution of colleges to war effort, in helping meet needs of army and war industry. (OWI)

MANPOWER

No. 1127 *9 min.* *Service Charge 50c***

This year 10,000,000 more Americans must go to work! Paul V. McNutt outlines the problem and suggests steps to meet it. Especially effective when shown to older civilians, women and high school youth. (OWI)

U. S. NEWS REVIEW NO. 1

No. 1129 *21 min.* *Service Charge 50c***

Women at war, and campaign to increase coal production, are two of seven items in first of new newsreels. Battle scenes and general topics round it out. (OWI)

POWER FOR DEFENSE

No. 1086 *10 min.* *Service Charge 50c***

Excellent and inspiring story of how great power plants in Tennessee Valley make possible production of munitions, clothing and other military needs.

COAL FOR VICTORY

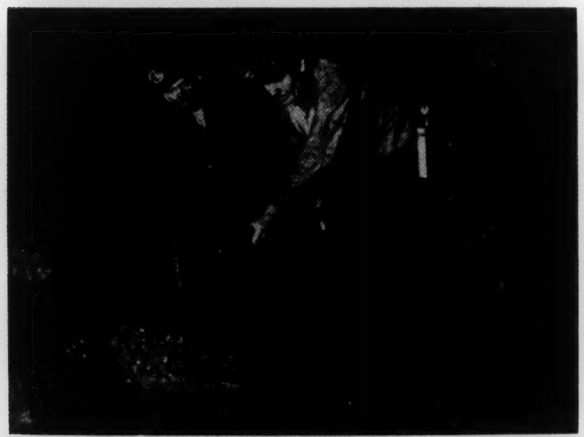
No. F-27 *8 min.* *Service Charge 50c*

How coal is produced. Must be conserved for victory. Suggestions on saving. (Bit. Cons. Counsel)

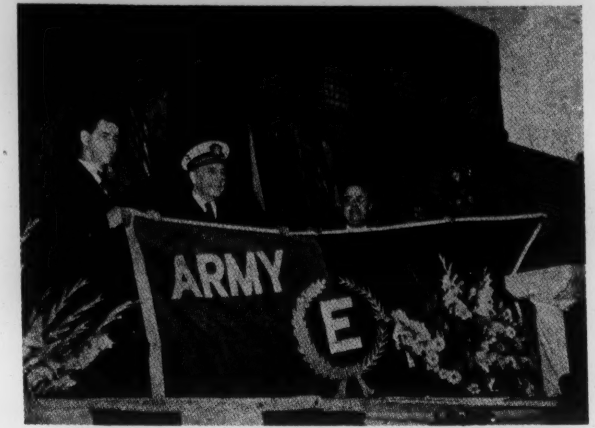
POWER FOR THE NATION

No. F-19 *35 min.* *Service Charge $1§*

Modern methods of producing, washing and transporting coal for industrial and domestic use. (N. & W. R.R.)



Soldiers of industry—the miners. POWER FOR THE NATION, No. F-19.



Recognition of war-production job, excellently done, No. 934

"E" FOR EXCELLENCE

No. 934 *10 min.* *Service Charge 50c§*

What it takes to win the coveted Army-Navy "E" award, for excellence in the production of essential war materials. Presentation ceremonies at the new plant of the Bell & Howell Company.

SALVAGE

No. 1120 *7 min.* *(333)* *Service Charge 50c***

The vital role of scrap metal and other materials in keeping our war machine going. Historical background of salvage for war, even in our revolutionary times. Impressively narrated by DONALD NELSON, head of the War Production Board.

WAR AGAINST WASTE

No. F-71 *20 min.* *Service Charge $1§*

Saving and reclamation of all kinds of waste materials in modern industry. Very effective. (Caterpillar Tractor)

WOMEN IN WAR INDUSTRY

WOMEN IN DEFENSE

No. 1087 *10 min.* *Service Charge 50c***

In factories, laboratories, and social services, women are shown to be occupying a constantly expanding role. (OWI)

BRITISH WOMEN AT WAR

Consult special catalog supplement listing over 200 films released by British Ministry of Information through the FILMOSOUND LIBRARY, at nominal service charge (50c). Some of the films dealing with women in industry are:

HER FATHER'S DAUGHTER *No. 1261* *9 min.*

How competently the women of Britain are stepping into war factories, to free manpower for battlefronts.

HOSPITAL NURSE *No. 1346* *8 min.*

Young nurse in training, from first day as student to graduation.

THEY ALSO SERVE (Housewife) *No. 1345* *8 min.*

Dawn to dusk activities of average British housewife.

WOMEN AT WAR *No. 1205* *11 min.*

Survey of the many jobs women are doing in wartime Britain, introduction by Ambassador Winant.

JANE BROWN CHANGES HER JOB *No. 1311* *9 min.*

Office worker goes in for special training and soon finds her proper place in airplane factory.

See Col. 165 for general British war industry films.

Industrial Defense Training Films

USOE films show step-by-step detail of machine operations. The application of all these films to War Dept. Pre-Induction Course 103 is obvious.

Bench Work

THREADING WITH TAPS AND DIES
No. 5050 *20 min.* *$2*
Correct use of taper tap, plug tap, bottoming tap and dies, used in tapping blind hole and threading stud bolt.

SCRAPING FLAT SURFACES
No. 5051 *14 min.* *$1.50*
Five common forms of hand scrapers, and their use in scraping fuel pump body to produce liquid-tight joint.

FITTING AND SCRAPING SMALL BEARINGS
No. 5052 *21 min.* *$2*
Detailed demonstration of scraping of split and solid bearing, layout and chipping of oil grooves.

REAMING WITH STRAIGHT HAND REAMERS
No. 5053 *19 min.* *$2*
Use of straight and spiral fluted reamers, on bearing and gear blank.

REAMING WITH TAPER HAND REAMERS
No. 5054 *16 min.* *$1.50*
Hand reaming taper pin hole through shaft and collar, taper reaming dowel pin hole.

CENTERING SMALL STOCK
No. 5055 *11 min.* *$1*
Centering round, square and rectangular blocks, by use of (1) flat surface V-blocks and surface gage, (2) hermaphrodite calipers, (3) center head and rule.

LAYING OUT SMALL CASTINGS
No. 5056 *16 min.* *$1.50*
Location of bolt holes in saw bracket in relation to bearing; location and punch marking of six evenly spaced bolt holes on pipe flange, preparatory to drilling.

FUNDAMENTALS OF FILING
No. 5057 *12 min.* *$1*
Principal types of files identified, their purposes explained, and their use demonstrated.

Precision Measurements

THE STEEL RULE *(102-II-B)*
No. 4943 *12 min.* *$1*
Laying off measurements with rule, and setting calipers, scribers, dividers; good practical applications.

THE MICROMETER *(102-II-B)*
No. 4944 *15 min.* *$1.50*
Importance of accuracy of inside and outside micrometers, practically demonstrated.

FIXED GAGES
No. 4945 *17 min.* *$1.50*
Importance to uniform inspection in mass production, showing many types of gages, and their proper use.

VERNIER SCALE *(102-II-B)*
No. 4946 *19 min.* *$1.50*
Excellent for teaching shop or mathematics classes, and for training apprentices and production workers. The principle and practice of relating 9- and 10-scales as a means of accurate measurement of tenths clearly demonstrated.

HEIGHT GAGES AND STANDARD INDICATORS
No. 4947 *11 min.* *$1*
Uses of vernier height gages, dial indicators, and gage blocks for precision layout and for checking flatness, centering, cut depth, and similar jobs.

Drill

COUNTERSINKING, COUNTERBORING AND SPOT FACING
No. 5064 *20 min.* *$2*
Setting up the vertical drill for these three different production jobs.

DRILLING HOLE IN PIN
No. 5062 *10 min.* *$1*
Two methods are shown in drilling a hole in each end of a steel pin—drilling to layout and with a jig.

DRILLING
No. 5041 *22 min.* *$2*
U. S. Navy training film showing procedures in drilling holes in various substances, metal, wood and plastics. (USN-141-J)

DRILLING AND TAPPING *(Cast steel valve body)*
No. 4949 *20 min.* *$2*
Drill jig with loose bushings locates blind holes; methods of securing. Calculating size and setting of tap drill for depth. Wizard chuck used in drilling, standard friction chuck in tapping. Why taps bind in tough metals.

DRILLING TO LAYOUT *(Spotfacing cast iron valve body)*
No. 4950 *15 min.* *$1.50*
Correction of off-centering drill. Use of spot-facing bar and fly cutter.

LOCATING HOLES, DRILLING AND TAPPING IN CAST IRON
No. 5063 *18 min.* *$1.50*
Setting up, operation and special precautions to be taken when working in cast iron.

Single Point Cutting Tools

FUNDAMENTALS OF SIDE CUTTING TOOLS
No. 5058 *10 min.* *$1*
Analysis of purpose of tool, its parts named, and basic factors that determine its varying forms.

FUNDAMENTALS OF END CUTTING TOOLS

No. 5059 *12 min.* *$1*

Seven representative end-cutting tools in use—grooving or nicking, parting, radius, threading, sheer cut finishing, round nosed finishing, side facing.

Shaper

MACHINING RECTANGULAR CAST IRON BLOCK

No. 4954 *25 min.* *$2*

Rectangular block, held in vise, is machined on all six surfaces. Use of tell-tale papers to check seating on parallels, reference surface governs all others. Difference in shape and setting of roughing and finishing tools. Automatic and hand feed.

CUTTING KEYWAY *(On finished shaft)*

No. 4953 *10 min.* *$1*

Safety precautions in using shaper, clearance hole at end of cut, setting of proper tool, governing of ram stroke.

MACHINING TOOL STEEL V-BLOCK

No. 4955 *21 min.* *$1.50*

Solid piece of steel is held in shaper vise, paper shims insure correct seating on the parallel, setting ram for length and position of stroke, roughing out and finishing, head remains fixed, piece reversed in vise.

Vertical Boring Mill

ROUGH FACING, TURNING & DRILLING

No. 4940 *31 min.* *$3*

Identification and use of controls on vertical turret lathe in making facing, turning and drilling cuts. A typical operation sheet is followed, just as it would be on a production job. Work is held by jaws of combination chuck on table. Use of indexes on vertical and transverse feeds. Safety.

ROUGH FACING, BORING & TURNING SHOULDER

No. 4941 *22 min.* *$1.50*

Operation of vertical and side heads, holding work on table with clamps and driving block, independent use of two heads, and their automatic horizontal and vertical feeds. Reference clippings on index dials of hand feed wheels. Production setup.

FACING, TURNING, BORING, GROOVING, CHAMFERING *(2 heads)*

No. 4942 *31 min.* *$2*

Operation of vertical turret lathe, with simultaneous use of both heads, securing work in special fixture, precautions to be observed in machining magnesium-alloy castings, use of surface gage and test indicator for leveling and centering. Tooling up for production work. Review.

Milling Machine

THE MILLING MACHINE

No. 4930 *9 min.* *$1*

Versatility, precision and efficiency of machine, basic elements revolving cutter and movable table, have to use controls.

CUTTING KEYWAYS

No. 4931 *15 min.* *$1.50*

Rigid arbor setup, calculation of speed and feed. Automatic and hand feeds. Setting table and stops. Securing work.

STRADDLE AND SURFACE MILLING *(Close tolerances)*

No. 4932 *27 min.* *$2*

A solid block of steel is surfaced on four sides, then straddle-milled into a T-block.

STRADDLE MILLING

No. 4933 *17 min.* *$1.50*

Rigid arbor setup, lining up four side milling cutters with spacing collars, calculation of feed and speed, rotating fixture 180 degrees and locking.

PLAIN INDEXING—CUTTING SPUR GEAR

No. 4934 *26 min.* *$2*

Identifies parts of gear tooth, explains diametrical pitch, use of dividing head for spacing any desired number of teeth, indexing plates and sector, spacing checked by test nicks. Finishing cut checked with gear tooth vernier.

Engine Lathe

TURNING TAPER WITH TAILSTOCK SET OVER

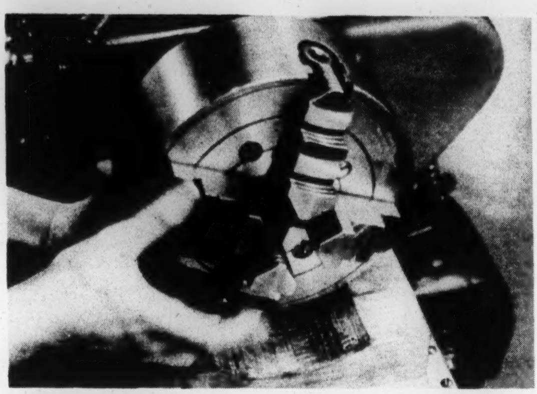
No. 5060 *18 min.* *$1.50*

Three methods most commonly used when turning tapers on lathe.

CUTTING AN EXTERNAL ACME THREAD

No. 5061 *16 min.* *$1.50*

Methods used and sequences followed, from roughing cut through to final finish.



Close-up details of bench skills shown in these USOE films.

ROUGH TURNING BETWEEN CENTERS

No. 4935 *16 min.* *$1.50*

Various parts of machine named, functions described, use of controls, proper setting of rough cutting tools, safety precautions, working against blueprints.

TURNING WORK OF TWO DIAMETERS

No. 4936 *14 min.* *$1.50*

A gear blank, with its shaft, is turned from a solid piece of round stock, as an exercise in laying off and nicking, following blueprint dimensions, rough and finish turning, facing and turning of fillets.

CUTTING A TAPER *(Compound Rest—Taper Attachment)*

No. 4937 *10 min.* *$1*

A sharp taper is cut on one end of the work, using the compound rest, and a slight taper on the other, with the taper attachment. Setting of both is explained, and checking with bevel protractor, ring gages and micrometer is demonstrated.

DRILLING, BORING AND REAMING *(Work held in chuck)*

No. 4938 *10 min.* *$1*

Accurate centering in independent chuck. Rough facing, hand feed. Drill mounted in special holder in tail stock spindle. Boring tool and bar set in tool post, taper attachment set, boring cut made, and finished with taper reamer.

CUTTING EXTERNAL NATIONAL FINE THREAD

No. 4939 *12 min.* *$1*

Acme, square and national fine threads identified. Cutting tool ground and set. Undercut checked with pitch gage. Use of setting gage, lead screw, cross feed screw, thread indicator dial explained.

Shipbuilding Skills

The purpose of this course of film lessons, prepared under the supervision of the U. S. Office of Education, is to convey to the army of novice workmen who must man our vastly expanded shipyards an adequate overall introduction to assembly steps, nomenclature, part identification, markings, erection procedures and inter-relationship of the many crafts that combine to build a modern vessel. They are intended to serve an introductory, a review, and a corrective purpose.

KEEL BLOCK AND BOTTOM CRADLE
No. 4957 *19 min.* *$1.50*
Explanation of terms: base line, water line, buttock line, frame lines, declivity angle, port and starboard, athwartships, fore and aft. Setting keel block to center line and proper declivity angle, and the marking off and setting of a spaul from a template mold. Function of side spauls, laying off and setting spur spaul. Special skills shown include use of broadaxe, adze, and chalk line. Emphasis on reading and application of blueprint symbols.

INNERBOTTOM SECTION *(Closed floor & open floor sub-assemblies)*
No. 4958 *20 min.* *$1.50*
Shipfitters' terms defined: vertical keel, flat keel, keelson, floors, stiffener, baffle plate, universal mold. Relationship between blueprint, template, and floor; meaning of different types of punch marks, fitting T-bar stiffener, flat bar face plates on the snipe, and flat bar ring stiffener or chock in the lightening hole.

INNERBOTTOM *(Setting up floors and longitudinals)*
No. 4959 *20 min.* *$1.50*
Setting and fitting a closed floor in innerbottom section, fairing keel, setting longitudinal girder, tack welding into place. Collaboration between shipfitter and shipwright.

DECK GIRDER *(Sub-assembly)*
No. 4960 *13 min.* *$1.50*
Why, where, and what are deck girders? Shipfitter marks out center line and buttock lines, doubler is riveted to web, tilting bracket is fitted, and girder swings into place. Tack welding to prevent buckling, tips on riveting.

SIDE FRAME *(Sub-assembly of a web frame)*
No. 4961 *20 min.* *$1.50*
Role of side frames in holding ship in shape, with web frames wherever unusual pressure and strain are to be counteracted. Laying off frames in pairs, reversing templates. Use of frame numbers, water lines, and buttock lines in locating web frame. Copper batting strips used in butt welding web to frame. Location of lightening holes and flat bar ring stiffeners.

DECK *(Setting web frame and transverse beam)*
No. 4962 *19 min.* *$1.50*
Laying off various location lines, definition of camber, wooden batten, spiel line. Checking for squareness. Marking for removal of excess metal; use of spur shores. Bringing into place.

BULKHEAD—A *(Boundary, stiffeners, water line, buttock lines)*
No. 4963 *20 min.* *$1.50*
Procedures and "knacks" used in laying off and using templates, locating stiffeners, outlining boundaries for cutters. Use of dogs and wedges to secure flat fit, chipping weld to secure close fit.

BULKHEAD—B *(Centerline stiffener)*
No. 4964 *16 min.* *$1.50*
Laying off and setting a center line T-bar stiffener in a watertight bulkhead. Most economical cutting of stiffener and tripping bracket from an I-beam, use of templates, following of blueprint. Fitting to bulkhead, perfect alignment, spot and production welding.

BULKHEAD—C *(Setting into hull)*
No. 4965 *19 min.* *$1.50*
Importance of alignment, technics used in shifting and shoring transverse watertight bulkhead. Locating of lines by shipwright, positioning of bulkhead, final trimming, checking of alignment.

DECK PLATES *(Regulating and setting)*
No. 4966 *16 min.* *$1.50*
Aligning, regulating, fitting. Use of steamboat jack, ratchet and angle bar clips, and bolts for moving plates into place. Role of deckplates for transverse bracing. Root opening for welding. Fairing strips for flush joints for welding. Strongback straightens bent or buckled plate. Review.

British War Industry

The experiences of our British allies, considerably longer in the war than we, is of great value to us. They have developed the knack of telling this experience in a series of films addressed to their own people. It is decidedly worth our while to "listen in," and they don't mind our doing so at all. The British film catalog foreword points out that "The people in these films may speak in accents strange, but what they speak about is common experience." These accents present no insurmountable difficulty, for the films themselves all deal with common tasks and problems. A complete list of these fine British films will be sent free upon request. Over 200 are available through the FILMOSOUND LIBRARY.

ARMS FROM SCRAP *No. 1211* *9 min.* *50c*
Salvage reclaimed from blitzed buildings.

BEHIND THE GUNS *No. 1230* *21 min.* *75c*
Steel, made into cannon, munitions, ships.

BIRTH OF A TANK *No. 1260* *11 min.* *50c*
Boys and women share work on Valentine tanks.

BUILDERS *No. 1284* *8 min.* *50c*
New factories rise on blitzed sites.

A FEW OUNCES A DAY *No. 1286* *8 min.* *50c*
All-diagram film shows importance of home salvage.

FURNACES OF INDUSTRY *No. 1237* *12 min.* *50c*
Sources and processes of steel production.

A JOB TO BE DONE *No. 1262* *10 min.* *50c*
Six workers behind each soldier, trained and placed.

MEN IN DANGER *No. 1349* *20 min.* *75c*
Combatting industrial accidents and illness.

MOBILE ENGINEERS *No. 1263* *8 min.* *50c*
Travelling trouble shooters smash bottle-necks.

SHIPBUILDERS *No. 1292* *10 min.* *50c*
Typical craftsmen tell own story. Hard to understand.

STEEL GOES TO SEA *No. 1268* *14 min.* *75c*
No. 242, from keel laying to launching.

TRANSFER OF SKILL *No. 1231* *10 min.* *50c*
Hobbies harnessed to war-time essential jobs.

WARTIME FACTORY *No. 1248* *10 min.* *50c*
Worker's welfare cornerstone of effective production.

WELFARE OF THE WORKERS *No. 1269* *9 min.* *50c*
Labor conditions essential to war program.

YESTERDAY'S OVER YOUR SHOULDER *No. 1270* *9 min.* *50c*
Clerk retrained into machinist. Good human comedy.

Automotive Mechanics

ELEMENTS OF THE AUTOMOBILE

No. X9205—X9210 Silent 6 Parts, each 1 reel $1.50 per reel

Classic set of instructional films, by Bray, covering the basic principles of automotive mechanics, chiefly by means of animated drawings. All resemblance to specific makes or models of cars is avoided. There is no advertising. These films are available only in silent form, but the sub-titles are very clear and comprehensive. This revised version covers each subject in a single reel.

DIFFERENTIAL *No. X-9205* *(102-XIV)*

ENGINE *No. X-9206* *(102-XIV)*

CARBURETOR *No. X-9207* *(102-XIV)*

IGNITION *No. X-9208* *(102-XIV)*

TRANSMISSION *No. X-9209* *(102-III)*

COOLING SYSTEM AND BRAKES *No. X-9210 (102-III-XIV)*

WHERE MILEAGE BEGINS *(102-VIII)*

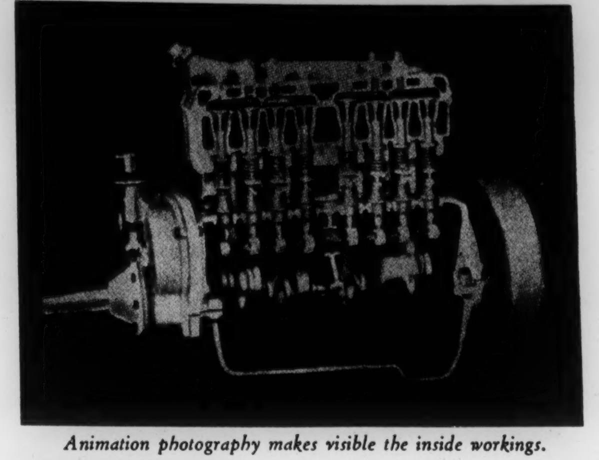
No. 1012 21 min. GHYT *Service Charge $1*

Gasoline motor compared to cannon. Carburetor to a spray gun. Four-stroke-cycle, combustion process, why multiple cylinders. Function of transmission gears, universal joint, rear axle. Excellent film for shop or science, no advertising. (General Motors) Not available to private trade schools.

DIESEL, THE MODERN POWER

No. 1013 19 min. GHYT *Service Charge $1*

Early methods of making fire, basis of power, including Asiatic air-compression fire syringe. Four-stroke versus two-stroke cycle. Injector role. Making Diesel engines (General Motors) Not available to private trade schools.



Animation photography makes visible the inside workings.

WILLARD AND YOU *(101-IV)*

No. F43 3 reels GHYJT *Service Charge $1§*

Manufacture of electrical storage battery, from raw material to completed unit, and its many applications in science and industry. (Willard Storage Battery Co.)

FUEL RESEARCH, ETC.

No. 1009 10 min. GHYT *Service Charge $1*

Fuel research on ethyl treated gasoline, wind velocity meter, self-photographed bullet, powder metallurgy—a new industry, self-lubricating porous bearings, Diesel-powered fire boats.

Personnel Attitudes

Job situations and subjective factors are dramatized in these three intensely in this new series. No. 3538-40.

I WANT A JOB

No. 3538 22 min. $3

Millions of young people, now seeking their first jobs, could benefit by this interestingly dramatized lesson on self-appraisal in terms of local job opportunities, and of how personnel managers size up applicants.

MINUTES ARE PENNIES

No. 3539 21 min. $3

The right and wrong ways of meeting responsibilities of routine business jobs, promptly and co-operatively, are shown in this interesting story of the handling of a rush order. A parallel is drawn with the split-second co-ordination and team work of a football team. Applicable to any detail work situation.

COURTESY COMES TO TOWN

No. 3540 19 min. $3

Practical values of courtesy brought out by interesting story of two youngsters who set out to prove the present generation no less courteous than its elders. Many examples, some genuinely amusing, come to light. All three in this series are stories by Director of Visual Instruction of the Los Angeles Public Schools.

Safety

FOOT FAULTS

No. 4464 10 min. $1.50

Bad pedestrian habits revealed as major contribution to loss of man-hours in defense industry. Excellent examples of carelessness drawn from all ages. (Produced by Los Angeles Police Department)

MOTORS ON PARADE

No. 4469 10 min. $1.50

Training and function of motorcycle police in large city as factor of increasing traffic safety. (Produced by Los Angeles Police Department)

DRIVE FOR VICTORY

No. 4983 Sound 10 min. (433) $1.50

Essentials of war-time conservation of gasoline, tires and automobiles. Many helpful and patriotic suggestions. Produced in cooperation with Greater New York Safety Council.

CHECK WELL BEFORE USING

No. 5048 10 min. $1.25

Importance of thorough check-up by truck drivers of tires, brakes, lights, radiator, gas and oil.

See also Safety films, Col. 79 and 112, Educational Catalog.

War Agriculture

HENRY BROWNE, FARMER

No. 1132 *11 min.* *Service Charge 50c***

Magnificent down-to-earth story of what one American farmer and his family are doing to help win the war. That Henry Browne is a Negro, on a very small farm, and with a son training nearby as a pursuit pilot, makes the picture all the more impressive. Excellent narration by Canada Lee. (USDA-OWI)

EVER SINCE EDEN

No. F-69 *30 min.* *Service Charge $1*

Story of the tomato, from time of Cortez to the Heinz cannery. Historical background, then detailed process story. Some advertising, but well done.

See also large list of Agriculture films, Cols. 81-2, Educational Catalog. A number of interesting war-time agriculture films are in our British supplement.

DEMOCRACY IN ACTION

No. 1108 *10 min.* *(333)* *Service Charge 50c***

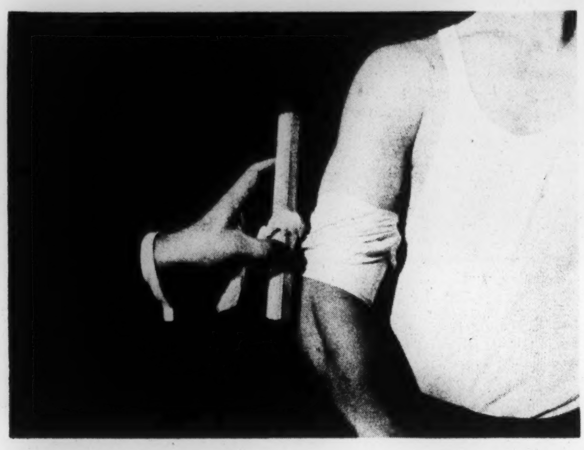
Pearl Harbor's bombs are answered by President Roosevelt in Congress, and also by millions of American farmers. They fight, with corn harvesters and cotton pickers. They raise record crops of industrial raw materials. How farmland is to be utilized is voted on, and it's "one man—one vote"! It takes eighteen men behind each man behind the man behind the gun to beat the Axis. Farm and public school have a vital defense role.

HOME ON THE RANGE

No. 1121 *11 min.* *(333)* *Service Charge 50c***

Cattle and sheep ranches vital to our economy in war and peace. Importance of water and grass, and of the sturdy men of the range. Interesting round-up and shipping scenes. All audiences. (USDA)

First Aid—Health



EMERGENCY FIRST AID

A series of eight reels, each dealing with a definite part of the volunteer first aid course. The films are privately produced, by Dr. Jacob Sarnoff, Brooklyn, New York, and carry the endorsement of the International College of Surgeons. Edited and narrated by W. F. Kruse. Each reel closes with a review of basic essentials. Excellent for classroom or self-instruction. **There are four distinct versions available on each of these films.** Be sure to state definitely, when ordering by title, whether (1) Black-and-white Sound, or, (2) Black-and-white Silent, or, (3) Color Silent, or, (4) Black-and-white 8mm. version is wanted. When ordering by number, be sure to use the right prefix! Where no prefix is given on a number order, the Black-and-White Sound version will be sent. Silent versions average 16 minutes per reel, sound 10 minutes.

All are one reel, except HUMAN BODY, which is two reels long, and priced double the following schedule.

Black-and-white sound (No prefix)	*Rental, each* $1.50
Black-and-white silent (Prefix X just before number)	*Rental, each* 1.00
Color Silent (Prefix XC before number)	*Rental, each* 3.00
Black-and-white 8mm. (Prefix 8X before number)	*Rental, each* 1.00

THE HUMAN BODY IN FIRST AID	*No. 505*	*Two reels*
I: BLEEDING—RESUSCITATION—SHOCK	*No. 500*	
II: TREATMENT OF WOUNDS AND BURNS	*No. 501*	
III: FIRST AID IN FRACTURES	*No. 502*	
IV: FIXED TRACTION SPLINTING	*No. 503*	
V: TRANSPORTING THE INJURED	*No. 504*	
VI: ROLLER BANDAGING	*No. 528*	

A large number of health films is listed in Cols. 67-9 of our Educational Catalog. A fine group of similar subjects dealing with war time conditions is described in the British films supplement. Films on physical culture and sports will be found in Col. 93-9, Educational Catalog.

Drill

CLOSE ORDER DRILL *(USN-201-a-P, Series as whole)*

Navy training film, teaching marching and movement, offered for rental in three separate parts:

I: SQUAD	*No. 5098*	*25 min.*	*$2.00*
II: PLATOON	*No. 5099*	*27 min.*	*2.00*
III: MANUAL AT ARMS	*No. 5100*	*30 min.*	*2.50*

FUNDAMENTALS OF RIFLE MARKSMANSHIP

No. X-3432 *Silent* *55 min.* GYT *(430)* *$5*

One of the most popular sports in America, and one affording direct support to a mass defense program, is explained and its technique demonstrated in a way that makes sense to tyro and expert alike. (National Rifle Asso.)

PISTOL BULLSEYES

No. X-3431	*Silent*	*40 min.*	GYT	*(430)*	*$3.75*
No. 3431	*Sound*	*30 min.*		*(433)*	*4.00*

Detailed, readily followed course in fundamentals of pistol target shooting, fine new photography, under direction of National Rifle Association.

SHOOTING HOLIDAYS

No. XC3433 *28 min.* *(330)* *$4*

Three weeks of outdoor marksmanship contests at Camp Perry, jointly sponsored by the National Rifle Association and the U. S. Army. Over 4000 contestants, the cream of a half-million followers of the sport. Instructive, interesting.

Consult also British supplement for details concerning WARTIME FACTORY (Defense Corps) and STREET FIGHTING.

Psychological Warfare

THE PRICE OF VICTORY

No. 1131 *13 min.* *Service Charge 50c***

Stirring pronouncement of our war and peace aims, by Henry A. Wallace, Vice-President of these United States. A summary of his famous "Free World Association" speech, one of the most lucid and challenging of historical utterances. (OWI)

DIVIDE AND CONQUER

No. 1133 *14 min.* *Service Charge 50c***

How the Nazi propaganda machine paved the way for the subjugation of France, by spreading dissension and breaking down morale. They try similar tactics here but fail in the face of American unity and will to win. (OWI)

Movies for Morale

The rest of this supplement is devoted to movies that teach and train. Here's a page of more recent accessions intended to cheer and entertain. Don't pass them by! They also serve to keep up spirit and ease strain. • "Movies for Morale" are a basic part of our win-the-war services.

Some are also general educational films, not elsewhere cataloged. Many war plants are beginning to use films during lunch and rest periods. Many Civilian Defense and other home front groups find that the one sure way of getting people to come to meetings—and to leave happy and determined to work—is to show movies—like these. In schools, churches, and other centers of American life, these films are helping to lick Hitler.

Title (Type and Length)	*Number*	*Rental*
African Pigmy Thrills (E-1)	5209	$ 1.25
Air Raid Warning (W-1)	5202	1.25
Air Waves (E-1)	5404	1.50
Algiers (F-9)	3533	17.50
American Handicrafts (E-1)	945	1.50
	C-945	3.00
‡Antarctic Outpost (E-1) 7/43	2448	1.50
‡Appointment for Love (F-9) 5/43	2431	17.50
‡Automatic Life Boat (N-1)	2500	1.50
Banff and Lake Louise (TE-1)	5205	1.25
‡Batchelor Daddy (F-7)	2299	17.50
Battling Bettas (E-1)	5045	1.50
‡Blacksmith Dentist (N-1)	2514	1.50
Bob's Busy Day (MC-1)	148	1.50
‡Bombay Clipper (F-6) 9/43	2427	17.50
‡Broadway (F-10) 7/43	2433	17.50
‡Bryce Canyon & Birds' Pal (NE-1)	2512	1.50
‡Burma Convoy (F-6) 5/43	2426	17.50
Bushland Revels (E-1)	5046	1.25
‡Butch Minds the Baby (F-8) 10/43	2424	17.50
Buzzy Rides the Range (F-6)	5300	10.00
By-Ways of New France (TE-1)	XF75	1.00
‡Call of the Sea (E-1) 5/43	2447	1.50
California Picture Book (T-1)	4426	1.25
‡Campus Capers (M-2)	2515	3.00
Caucasian Barrier (TE-1)	933	1.50
‡Cavalcade of Aviation (E-2)	2517	3.00
Christmas Cartoon (A-1)	5211	1.25
Chump at Oxford (F-7)	2067	17.50
City of Missing Girls (F-7)	5302	12.50
Civilian Fire Fighters (W-1)	5201	1.25
‡Cloth of Kings (TE-1)	2175	1.50
Code of the Cactus (F-6)	5315	10.00
Code of the Fearless (F-6)	170	10.00
Desert Escape (F-7)	5305	12.50
‡Deserts—Maine to California	2495	1.50
‡Dizzy Doings (M-2)	2507	3.00
‡Driftwood Fortune (N-1)	2506	1.50
Edge of the World (F-7)	3530	17.50
‡Embroidery Pictures (N-1)	2505	1.50
Fangs of the Wild (F-6)	4898	10.00
Fight for Egypt (WN-1)	5203	1.25
Fight for Justice (F-3)	2086	3.75
Fighting Renegade (F-6)	5317	10.00
Fight That Fire (W-1)	5043	.50
Flip Flops (C-1)	X-9245	1.00
Floor Show Rhythms (M-1)	5172	1.00
‡Flying Cadets (F-6) 5/43	2432	17.50
‡Fountain of Health (N-1) 6/43	2445	1.50
Football Thrills of 1942 (S-1)	5207	1.25
Front Line Hospital (WN-1)	5321	1.50
Going Spanish (MC-2)	5044	3.00
Gold (E-1)	5410	1.50
Grassland (E-1)	1040	1.00
Great Lakes, The (E-2)	C-5022	4.00
‡Grotto Miniatures (N-1)	2501	1.50
Harvest Hands (C-1)	X-9246	$ 1.00
‡Hellzapoppin' (F-9)	2435	20.00
Here Comes the Circus (N-1)	5210	1.25
History is Made at Night (F-9)	3539	17.50
Hitler Doing the Lambeth Walk (WC-¼)	191	1.00
‡Hold That Ghost (F-9)	2416	17.50
Housekeeper's Daughter (F-7)	2064	17.50
How to Make Faces (EM-1)	683	1.50
‡Humorous Tombstones (N-1)	2496	1.50
‡Humpty-Dumpty Doll (N-1)	2498	1.50
I'll Sell My Life (F-7)	5303	12.50
‡Invisible Agent (F-9) 2/44	2437	17.50
Islands of the St. Lawrence (ET-1)	XF74	1.00
‡It Started with Eve (F-10) 4/43	2423	17.50
‡Keep 'Em Flying (F-9) 6/43	2420	17.50
Knight of the Plains (F-6)	169	10.00
‡Lady in a Jam (F-10) 1/44	2436	17.50
Lightning Carson Rides Again (F-6)	5313	10.00
Logging in the Northwest (E-1)	953	1.50
4/43	C953	3.00
‡Maine Coast (TE-1)	2494	1.50
‡Making Fish Flies (N-1)	2502	1.50
Man of Aran (FE-7)	3542	15.00
Men of Muscle (E-1)	5408	1.50
‡Men of Texas (F-9) 1/44	2434	17.50
Midway & Coral Sea Battles (W-1)	4636	1.25
Mississippi Minstrels (M-1)	5170	1.00
‡Monkey Business (N-1)	2497	1.50
‡Music a la King (M-2)	2508	3.00
‡Music by West (M-1)	5169	1.00
Navajo Land (E-1)	5407	1.50
New Adventures of Tarzan (F-7)	5047	9.00
Newsreel (E-1)	5403	1.50
News Thrills of 1942-C (N-1)	4980	1.25
	X-4980	1.00
News Thrills of 1942-D (N-1)	4981	1.25
	X-4981	1.00
New York Calling (E-2)	F70	1.00
Noah Knew His Ark (A-1)	2087	1.25
	X-2087	1.00
Northwest Frontier (E-3)	5027	3.75
Of Mice and Men (F-11) 4/43	2065	17.50
One Rainy Afternoon (F-7)	3532	17.50
‡Once Upon a Summer Time (M-2)	2510	3.00
One Million, B.C. (F-9) 4/43	2066	17.50
Only the Brave (C-1)	154	1.50
Our Town (F-9)	3535	15.00
Outlaw's Paradise (F-6)	5314	10 00
Pack Trip (ET-1)	5406	1.50
Panama Menace (F-7)	5307	12.50
‡Pardon My Sarong (F-10) 2/44	2438	20.00
‡Paris Calling (F-12) 8/43	2430	17.50
Perce and Bonaventure (TE-1)	XF76	1.00
Phantom Pinto (F-6)	5301	10.00
Pilot Boat (E-1)	5409	1.50
‡Police Art Gallery (N-1)	2503	1.50
Prehistoric Trails in North Africa (E-1)	950	$ 1.50
Principles of Refrigeration (E-1)	4652	1.50
Real Java, The (E-1) 4/43	532	1.50
Revenge on the Range (C-1)	5208	1.25
‡Ride 'Em Cowboy (F-9) 9/43	2419	17.50
Rider of the Plains (F-6)	5310	10.00
Riding Horses (E-1)	1808	1.50
Robot Pilot (F-7)	5309	12.50
‡Rocky Wonderland (TE-1)	2512	1.50
‡Rooster Legionnaire (N-1)	2504	1.50
Russia Strikes Back (W-1)	5215	1.25
‡Rhythm Revels (M-2)	2509	3.00
‡Saboteur (F-11) 11/43	2421	17.50
Salmon and Trout Fishing in Gaspe (TE-1)	XF73	1.00
‡San Antonio Rose (F-7)	2414	17.50
Scrooge (F-7)	3541	20.00
‡Sealing in the Arctic (TE-1)	2493	1.50
Secret Investigator (F-7)	5307	12.50
S.O.S. Clipper (F-7)	5308	12.50
Six Shootin' Sheriff (F-6)	5311	10.00
Spanish Rhythms (M-1)	5171	1.00
‡Spoilers, The (F-9) 10/43	2422	17.50
Sport Spellbinders (S-1)	5206	1.25
Stray Lamb (EN-1)	5401	1.50
Streamlined (E-1)	5405	1.50
Sunset Murder Case (F-6)	5304	12.50
‡Swing It Soldier (F-7) 5/43	2418	17.50
Swinguet (M-1)	5402	1.50
Television (E-1)	5400	1.50
Test, The (N-1)	5042	1.25
Three-Way Sheriff (F-2)	5228	3.00
Trigger Fingers (F-6)	5316	10.00
‡Trinidad (TE-1)	2492	1.50
‡Tucson Trails (TE-1)	2491	1.50
Turn About (F-9) 6/43	2071	17.50
Under-Cover Avenger (F-3)	559	4.50
Under Siege (WN-1)	5320	1.50
Uneasy Three (C-1)	X-9247	1.00
U. S. Carrier Fights for Life (WN-1)	5215	1.25
U. S. Marines in Action (W-1)	4897	1.25
Utah Trail (F-6)	5319	10.00
Valley of Terror (F-7)	4769	7.00
War Against Waste (W-2)	F71	1.00
Warriors of the Sahara (EW-1)	951	1.50
Washington in War Time	4633	1.25
Way Up Thar (C-2)	5226	300
West Point (W-1)	5216	1.25
	X-5216	1.00
‡What's Cooking (F-7) 9/43	2425	17.50
What's To Do (C-2)	147	3.00
Whirlwind Horseman (F-6)	5312	10.00
‡Wings for Freedom (WE-1) 6/43	2516	1.50
‡Wolf Man (F-8) 6/43	2428	17.50
Yanks Invade Africa (WN-1)	5212	1.25

CODE: Type and Length: Number in brackets represents length in reels, each approximately 10 minutes. A-Animated Cartoons, C-Comedies, E-Education, general, F-Features, M-Music, N-Novelties, news, P-Pre-Induction War Training, S-Sport, T-Travel, W-War. "X" before a film number identifies a **silent** film; the prefix "C" indicates **color** film. Date following a title indicates general 16mm. release date; Army-USO use is 6 months earlier, shut-in location, 12 months. Films marked ‡ are major releases requiring prior location approval before use.

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This applies in film service as it does in equipment design. In patronizing our Library you know exactly what you will get, and exactly what you will pay for it. Our catalog descriptions are detailed and objective, many thousands of film users depend on them absolutely in selecting their programs. Prices are moderate, they are based on the cost of the film to us, and upon the service rendered. It is our aim to keep this service "better than average," and to achieve this end we employ our own highest standard professional servicing equipment, and carefully trained personnel. The customer's convenience is our rule; for instance, where several films are ordered on a single program, these are mounted on request on large reels in the sequence designated, without extra charge.

SUBSTITUTIONS are sometimes unavoidable. Specify on your order whether you wish our Library to make substitutions, and within what limits, if the film you request is not available on the date needed.

In these days of shortage please take **especially** good care of rental films. No charge is ever levied for ordinary wear and tear, but direct loss or damage, due to faulty equipment or operation, is billed against borrower.

Unless otherwise instructed, we ship films express collect, to arrive the day before play-date, when carrier keeps normal transit schedules. They must be started back not later than the day following play-date, express prepaid—borrower getting a 50 per cent reduction in rate on such round trip express shipments. No film rental charge is made for time consumed in transit, as long as the shipment is made in due time. No liability incurs for delays by carriers.

Despite our best efforts WAR CONDITIONS may make a film shipment late. Accept it even if delayed, use film where at all possible, or, if utterly unusable, accept nevertheless, and ship back to us instantly, express collect. We will arrange refunds promptly.

All films are shipped C.O.D., except where special credit arrangements are agreed upon in advance.

PRICES

CATALOG RATES apply to all **"spot bookings,"** i.e., where a definite film is ordered specifically for a given date and occasion.

EXTENDED BOOKINGS: Add 50 per cent for each additional day held over. Weekly rate 2½ times, five-day school week 2 times, month 7 times. "Universal" features numbered above 2400, and a very few others, are not subject to weekly or monthly rates.

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Make your orders explicit. Check them before mailing to make sure you have covered the following points: Name or class of film wanted, play-date or dates (preferably hour also), consignee's exact name and address, special mounting, shipping and billing instructions where needed. Leave the rest to us—you are sure to be well served.

THIS ANNUAL QUOTA—forty reels of shorts or six feature films per year—is so moderate that virtually any film renter can meet it. In placing your first order please specify whether this is a one-time "spot booking," or whether you wish to take on the Annual Service quota.

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Never before has the use of 16mm. motion pictures been as important as today. Never before have the resources of films vital to our welfare been as great. And, never before has it cost less to obtain these pictures.

In front rank among the "must" films are the war-time releases of our government, here identified by a double star **. Films issued by the Office of War Information, the Co-Ordinator of Inter-American Affairs, and similar agencies, pictures as vital to victory as are men and munitions. These pictures contribute mightily to *morale*, the "armament of the mind." Every American should see every one of them. You cannot keep abreast of war developments, at home and abroad, unless you see a current government film release at least once a week.

The FILMOSOUND LIBRARY makes it easy and economical to use these films. Standard government rates (50c for the first film, 25c for each additional subject on the same order) are in themselves the biggest film bargain anyone has ever known. *To encourage widest possible use of the films, the FILMOSOUND LIBRARY announces special price concessions on mixed orders, comprising government and non-government films. Yours is the choice of these two plans:*

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Recognition of war-production job, excellently done, No. 934

"E" FOR EXCELLENCE

No. 934 *10 min.* *Service Charge 50c§*

What it takes to win the coveted Army-Navy "E" award, for excellence in the production of essential war materials. Presentation ceremonies at the new plant of the Bell & Howell Company. Free when ordered with rental films.

TAKE ADVANTAGE OF THESE SAVINGS!

1) Authorize us to include a free government film with every regular program you book. Or,—

2) Add recreational films to your government programs at these low rates.

Various Ways to Use Government Films

Wherever a solid program of government films meets audience requirements, by all means use this type of program. It is the best basis for discussion meetings, school and civilian defense activities, and other serious occasions. But wherever you confront casual-interest groups, some lightening of the program may be most desirable. And, certainly, wherever you have purely recreational audiences, it is most timely to include at least one worthwhile government film as a regular part of the show, just as is done in the theatres.

Why not write our bookers TODAY:—"Yes, I want one (or more) current government films included in every program I book!"

"DIVIDE AND CONQUER"—a Warner Bros. Production distributed by the OWI; this picture will make you fighting mad when you see the "master race" working out its "new order."

U. S. Co-Ordinator of Inter-American Affairs

The following group of films, released by the Co-ordinator of Inter-American Affairs, is intended to acquaint the peoples of all the Americas with the democratic way of life that prevails generally on our hemisphere. The same service charge and rental conditions apply to this group as to government war films. All are sound films. Note that some are in color.

Lively Mexican boys at play. From AMERICANS ALL

AMERICANS ALL
No. 1088 *21 min.* *Service Charge 50c***
Over-all picture of our fellow-Americans to the South, 130 million of them, with a history longer and often more colorful than our own. Emphasis is on youth, at school, play, and work. Photographed and narrated by Julien Bryan.

ARGENTINE PRIMER
No. 1125 *23 min.* *Service Charge 50c***
Geography, history, advances toward industrialization. Relation of ranches and packing houses to U.S.A. (CIAA)

ARGENTINE SOIL
No. 1116—Monochrome *10 min.* *Service Charge 50c***
Sympathetic presentation of social and economic basis of our neighbor republic.

BOUNTEOUS EARTH
No. 1117 *Service Charge 50c*
In the fiestas held at the Mexican churches, particularly at Cholula, and at Tehuantepec we find cattle and fruits taken to the churches to be blessed.

BUENOS AIRES AND MONTEVIDEO
No. 1092 *10 min.* *Service Charge 50c***
Glimpses of these beautiful cities of Argentina and Uruguay, in normal and carnival times.

BRAZIL
No. 1089 *10 min.* *Service Charge 50c***
The Amazon River valley, and three great cities—Rio de Janeiro, Santos, and Sao Paulo.

BRAZIL GETS THE NEWS
No. 1100 *10 min.* *Service Charge 50c***
How a great daily paper is printed in Sao Paulo. The entire process is so much like our own, that the extensive use of this film will contribute much to technical knowledge as well as to better social understanding. (Rental prints $1)

COLOMBIA
No. 1090 *10 min.* *Service Charge 50c***
The port of Barranquilla, and the fine towns of Bogota and Cartagena. Countryside scenes.

COLOMBIA, CROSSROADS OF THE AMERICAS
No. 1123 *27 min.* *Service Charge 50c***
Geography and economics—social life—basic industries, oil, coffee, metals.

THE DAY IS NEW
No. 1099 *10 min.* *Service Charge 50c***
Life of typical Mexican people, from dawn to night.

FIESTA OF THE HILLS
No. 1104—Monochrome *11 min.* *(221)* *Service Charge 50c***
No. C1104—Color *(231)* *Service Charge 50c***
Religious festivals in highlands near Mexico City. (Adult)

HIGH SPOTS OF A HIGH COUNTRY
No. 1094 *20 min* *Service Charge 50c***
Volcanic Guatemala, with its romantic old cities, colorful markets and hard-working farmers.

HILL TOWNS OF GUATEMALA
No. C1096—Color *10 min.* *Service Charge 50c***
No. 1096—Monochrome *Service Charge 50c***
Tiny towns, perched high on the slopes of extinct volcanoes, have a uniquely fascinating life all their own.

A LINE FROM YUCATAN
No. 1119 *10 min.* *(433)* *Service Charge 50c***
Most important crop, sisal, used to make fine rope. In World War I, our foes kept this from us, resulting in collapse of sisal raising after war ended. Native life sustained on local produce, outside world enters, local manufacture begins.

MEXICO BUILDS A DEMOCRACY
No. 1122 *11 min.* *Service Charge 50c***
New social developments give great promise.

ORCHIDS
No. C1093—Color *10 min.* *Service Charge 50c***
Fairest and most exotic of South America's jungle flora, well photographed and interestingly presented.

OUR NEIGHBORS DOWN THE ROAD
No. 1097 *42 min.* *Service Charge 50c***
Automobile trip, mostly down the Pan-American Highway "as is," from Caracas to the Straits of Magellan.

PATAGONIAN PLAYGROUND
No. 1098 *10 min.* *Service Charge 50c***
On the eastern slopes of the Andes, we visit Nahuel Huapi Park, playground of the Argentine.

SUNDAY IN THE VALLEY OF MEXICO
No. 1118 *10 min.* *(421)* *Service Charge 50c***
A crowded day in the gay, cultured capital, hotel, cathedral, museums, Xochimilco, hat dance, bull fight.

THIS IS ECUADOR
No. 1124 *20 min.* *Service Charge 50c***
Strategic importance and strange fauna of Galapagos Islands. Spanish survivals in architecture and social structure. Natives hold to old ways in rural areas.

VENEZUELA
No. 1091 *10 min.* *Service Charge 50c***
Sugar plantations, colonial forts, and modern cities.

VENEZUELA MOVES AHEAD
No. C1150—Color *29 min.* *Service Charge 50c***
Broad overview. Photography by Julien Bryan.

WOODEN FACES OF TOTONICAPAN
No. C1095—Color *10 min.* *Service Charge 50c***
No. 1095—Monochrome *Service Charge 50c***
Fascinating fiestas of Guatemala, including the world famed eight-day celebration at Chichicastenango.

U. S. Office of W

Armed Services

PARATROOPS
No. 1144 *9 min.* *(433)* *Service Charge 50c***
First of series showing specialized operations of our army. How our toughest troopers are trained to meet any emergency, as they drop from the skies and come up fighting. Dramatic, inspiring. (OWI)

RING OF STEEL
No. 1103 *10 min.* *(434)* *Service Charge 50c***
Presenting the American soldier, his traditions and his code. Magnificent tribute, spoken by Spencer Tracy, a source of inspiration that ranks with the finest examples of spoken prose.

SAFEGUARDING MILITARY INFORMATION
No. 1084 *10 min.* *Service Charge 50c***
Importance of secrecy on the part of military personnel and workers engaged in essential industry. Shows how careless talk results in loss of men and material. Ships sink, factories explode, men die, all because someone was careless about talking too much.

WINNING YOUR WINGS
No. 1110 *18 min.* *(444)* *Service Charge 50c***
Bird's-eye view of how the United States Air Force is being built into the strongest and best trained in the world. Team work is the keynote, and Lt. Jimmy Stewart, ex-Hollywood star, appears in person and narrates the whole picture in inimitable style. Fine especially for high school. (OWI)

Battle Reports

U. S. NEWS REVIEW NO. 1
No. 1129 *21 min.* *Service Charge 50c***
Women at war, and campaign to increase coal production, are two of seven items in first of new newsreels. Battle scenes and general topics round it out. (OWI)

U. S. NEWS REVIEW No. 2
No. 1142 *19 min.* *(333)* *Service Charge 50c***
Combines interesting screen treatment of five timely topics: Unnecessary travel, mobile laundry for front line troops, Alcan Highway, jungle fighting, and the U. S. Marine Corps official hymn. (OWI)

U. S. NEWS REVIEW No. 3
No. 1147 *19 min.* *(333)* *Service Charge 50c***
Combines: Plywood bomber, Mr. "Fixit" comes into his own as household appliances become scarcer, battle report from New Guinea, "Liberators" blast Naples, letter from war-worker on learning of his son's death in action, U. S. Coast Guard official song. (OWI)

Lt. "Jimmy" Stewart, star in WINNING YOUR WINGS, No. 1110, Col. 177. Excellent films from the Office of War Information and other government agencies are available at nominal service charges through the FILMOSOUND LIBRARY.

War Information

Home Front

See also "News Reviews" (Col. 177) for other home front items.

CONQUER BY THE CLOCK

No. 1146   11 min.   (333)   Service Charge 50c**

Two short dramatic episodes show how thoughtlessness at home costs the lives of American fighting men. (OWI)

DIVIDE AND CONQUER

No. 1133   14 min.   Service Charge 50c**

How the Nazi propaganda machine paved the way for the subjugation of France, by spreading dissension and breaking down morale. They try similar tactics here but fail in the face of American unity and will to win. (OWI)

KEEPING FIT

No. 1138   10 min.   (333)   Service Charge 50c**

"Keep fit to do your bit" is keynote in film against absenteeism. Food, rest, exercise and recreation are all vital. Star-studded Hollywood production. (Universal-OWI)

LETTER FROM BATAAN

No. 1145   14 min.   (433)   Service Charge 50c**

Dramatized appeal from dying soldier brings home the awful stupidity and criminal heedlessness of waste and hoarding and other chiseling at home. (Paramount-OWI)

OUT OF THE FRYING PAN INTO THE FIRING LINE

No. 1134C   6 min.   (533)   Service Charge 50c**

Highly amusing color cartoon shows the importance of saving kitchen grease for the making of munitions.

SALVAGE

No. 1120   7 min.   (333)   Service Charge 50c**

The vital role of scrap metal and other materials in keeping our war machine going. Historical background of salvage for war, even in our revolutionary times. Impressively narrated by DONALD NELSON, head of the War Production Board.

SPIRIT OF '43

No. 1140C   6 min.   (543)   Service Charge 50c**

Donald Duck, in Technicolor, torn between need to save and desire to waste his war wages. Made for income tax drive, it has a war message of lasting value. (OWI)

Minority Groups

JAPANESE RE-LOCATION

No. 1137   9 min.   (433)   Service Charge 50c**

How evacuation of Japanese from critical areas on Pacific Coast was accomplished in a considerate and democratic manner. Setting up new life, on American pattern, further inland. Excellent morale film, general interest. (OWI)

See also NEGRO COLLEGES IN WARTIME, and HENRY BROWNE, FARMER

Music

SONG SHORTS   Service Charge, Each 50c**

A series of three-minute song shorts, with the words of at least one chorus flashed on screen for audience singing. Can be ordered together, or, preferably, one at a time, spliced on other government films.

No. 1115—ANCHORS AWEIGH
No. 1113—AS THE CAISSONS GO ROLLING ALONG
No. 1114—KEEP 'EM FLYING
No. 1139—MARINE HYMN ("Halls of Montezuma")
No. 1148—COAST GUARD SONG ("Semper Paratus")

Schools in Wartime

CAMPUS ON THE MARCH

No. 1130   19 min.   Service Charge 50c**

Contribution of colleges to war effort, in helping meet needs of army and war industry. (OWI)

NEGRO COLLEGES IN WARTIME

No. 1135   8 min.   (223)   Service Charge 50c**

Story of the men and women who prepare for greater war service, in colleges for colored students. Contributions of outstanding Negroes in the arts and sciences. (OWI)

United Nations at War

DOVER

No. 1136   10 min.   (233)   Service Charge 50c**

American newspaperman visits England's "hottest corner," and reports on effects of shelling and bombing, and on the undaunted spirit of an aroused people. (OWI)

LISTEN TO BRITAIN

No. 1128   21 min.   (433)   Service Charge 50c**

Eloquent story of life of everyday people of Britain. Film is unique in that it uses sounds rather than sights as central theme—we see and hear Spitfires roar, noonday factory concerts, children at play. (OWI)

TARGET FOR TONIGHT

No. 1106   49 min.   (333)   Service Charge $1.50

A documentary film so outstanding that it received major (Warner) distribution theatrically, with the title often getting top billing on dual feature programs. Every step of an RAF bombing trip over Germany is clearly shown, and suspense is well maintained over one of the planes long delayed in returning. Quentin Reynolds, in Collier's, calls this "the finest picture to come out of the war." (Brit.-OWI)

THE THOUSAND DAYS

No. 1141   21 min.   (333)   Service Charge 50c**

What our Canadian allies accomplished during their first thousand days of World War II. (OWI)

WESTERN FRONT

No. 1112   21 min.   (333)   Service Charge 50c**

Best and most informative film yet made on China's role in the war. The pattern of the new China was literally "Made in the USA," which accounts in part for Japan's attacks on both China and our country. High school, college and adult.

War Agriculture

DEMOCRACY IN ACTION

No. 1108   10 min.   (333)   Service Charge 50c**

Pearl Harbor's bombs are answered by President Roosevelt in Congress, and also by millions of American farmers. They fight, with corn harvesters and cotton pickers. They raise record crops of industrial raw materials. How farmland is to be utilized is voted on, and it's "one man—one vote"! It takes eighteen men behind each man behind the man behind the gun to beat the Axis. Farm and public school have a vital defense role.

HENRY BROWNE, FARMER

No. 1132   11 min.   Service Charge 50c**

Magnificent down-to-earth story of what one American farmer and his family are doing to help win the war. That Henry Browne is a Negro, on a very small farm, and with a son training nearby as a pursuit pilot, makes the picture all the more impressive. Excellent narration by Canada Lee.

HOME ON THE RANGE

No. 1121   11 min.   (333)   Service Charge 50c**

Cattle and sheep ranches vital to our economy in war and peace. Importance of water and grass, and of the sturdy men of the range. Interesting round-up and shipping scenes.

War Industry

ALUMINUM

No. 1079   9 min.   Service Charge 50c**

Bauxite ore becomes alumina, then aluminum sheeting, and finally a fighting plane. (OWI)

THE ARM BEHIND THE ARMY

No. 1126   10 min.   Service Charge 50c**

Importance of industrial production line to success on the battle-front. Industrial resources of the Axis, swollen with conquest. America's answer. Made by War Department especially to show importance of the industrial front. (OWI)

FILL IN YOUR ORDER, TEAR OUT, AND MAIL TODAY

Bell & Howell Company

FILMOSOUND LIBRARY

1801 Larchmont Avenue
Chicago, Ill.

30 Rockefeller Plaza
New York, N. Y.

716 North LaBrea Ave.
Hollywood, Calif.

1221 G St., N. W.
Washington, D.C.

FILM ORDER

Send government or other "sponsored" films listed below. We agree to pay charges and transportation, C.O.D., and to return prepaid, in good condition, not later than date following play-date. (Monthly accounting requires prior approval by B&H Credit Department.) *We also agree to fill out and mail promptly report cards accompanying films.*

Numbers   *TITLES*   *Service Charges*

....
....
....

Substitutions acceptable?..............Same type?..............Any type?..............

Please waive service charges on above, and charge us instead for following *rental* films at catalog rates:

....
....
....
....

Or, your booker's selection:....................reels @ $1 per reel—
preferably Cartoons..............Comedies..............Travel..............
General education..............Fictional features..............

Name of user..
Attention of..............................Title..............................
Address..
City..............................State..............................
For use on (date)..............................Hour..............................
At..............................Approx. size audience..............................
Remarks..

☐ *Please add a free sponsored film to every rental program we order henceforth.*

BOMBER

No. 1080   10 min.   Service Charge 50c**

Manufacture of Martin B-26 bomber. An excellent documentary film, commentary written by Carl Sandburg. (OWI)

BUILDING A BOMBER

No. 1082   20 min.   Service Charge 50c**

How the B-26 U. S. Army medium bomber is built. Of special interest to engineering schools, and to our air minded youth, from 6 to 60. (OWI)

BUILDING A TANK

No. 1105   20 min.   (433)   Service Charge 50c**

Tremendously impressive evidence of the might of our production army, new factories, machines and manpower turns out land battleships in record time. Proving ground test pictures. Fine for schools and morale meetings in factories.

List of OWI Films continues in Col. 181

All film service from ONE SOURCE

BELL & HOWELL
FILMOSOUND LIBRARY
ONE SINGLE SOURCE
FOR EVERY FILM SERVICE

Are you acquainted with the manifold film services you can obtain from this single comprehensive film source—the Bell & Howell FILMOSOUND LIBRARY?

Here are some of our resources and services, just waiting for your use:

1) ***Recreational films*** —over 2000 to choose from—every type, from kid cartoons to late "major" theatrical features starring Deanna Durbin, Abbott-Costello, many others.

2) ***Educational films***—almost as many—correlated to every subject, from kindergarten to college. Have you seen and used our unique *Utilization Digest*, which indexes, classifies and evaluates in detail each of our study films?

3) ***Special supplements***—like this one on "sponsored" films—cover such special fields as pre-induction, pre-flight, and other wartime schooling. Another, now in work, deals in detail with the "home front"—civilian defense, morale films, victory gardening, and similar war phases.

4) ***Special services and rates***—to meet special needs and conditions. If you can use educational and entertainment "shorts" even only for *six hours a year*, our $1 per reel "Annual Service Rate" saves you up to 50% on your film bills. Or if you can use an entertainment feature show on an average of even only once every two months, you can save $2.50 per show. Likewise, longer term bookings are economical, on most films it costs no more to use a film for five days than it does for three, seven days than four.

Write us today about your film plans and needs.

Bell & Howell Company
FILMOSOUND LIBRARY

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Chicago, Ill.

30 Rockefeller Plaza
New York, N. Y.

716 N. LaBrea Ave.
Hollywood, Calif.

1221 G St. N. W.
Washington, D.C.

There is an order blank on the reverse side of this notice.

Canadian War Films

BATTLE IS OUR BUSINESS

No. 1450 *35 min.* *Service Charge $1*

Young recruit tells story of his training, from enlistment to battle drill.

THE FIGHT FOR LIBERTY

No. 1451 *37 min.* *Service Charge $1.25*

Co-ordination of effort between Canada, U. S. A. and Great Britain in second year of war. Hemisphere defense, Balkan and African campaigns, Battle of the Atlantic.

FIGHTING SHIPS

No. 1452 *24 min.* *Service Charge $1*

Shipyards worker is shown importance of his part of the big job on a plant tour that includes corvette launching. Returns to convince others of importance of jobs.

OTTAWA ON THE RIVER

No. 4823 *18 min.* *Service Charge 75c*

Canada's capital a busy, healthful place, winter and summer. Color version, No. C4823, rental $4.

OTTAWA, WARTIME CAPITAL

No. 1453 *11 min.* *Service Charge 50c*

Canadian equivalent of "Washington in War Time," No. 4633. Government directions materialize in form of armies, ships, planes, munitions, food, social service.

SOLDIERS ALL

No. 1454 *20 min.* *Service Charge 75c*

Canadian soldiers training in Britain, Australians in Canada. Officers from Military College at Kingston.

STRATEGY OF METALS

No. 1455 *19 min.* *Service Charge 75c*

Vital role of miner and metal worker in winning the war. Canada's metal resources, great armament plants.

WINGS OF YOUTH

No. 1456 *19 min.* *Service Charge 75c*

Thousands of pilots graduate each year from Canada's great air schools. "Commonwealth Air Training Scheme."

OTHER CANADIAN FILMS

A fine list of additional National Film Board releases can be had from the FILMOSOUND LIBRARY at moderate rental charges. These include: ATLANTIC PATROL, BATTLE OF BRAINS, HOT ICE, PEOPLES OF CANADA, HEROES OF THE ATLANTIC, BATTLE FOR OIL, GUARDS OF THE NORTH, HERITAGE, TOOLS OF WAR, STORY OF CANADIAN PINE. And in *color*: CANADIAN LANDSCAPE, GREAT LAKES, ICELAND ON THE PRAIRIES, FOUR NEW APPLE DISHES.

OWI, *Continued from Col. 180*

War Industry

TANKS

No. 1102 *10 min.* *(333)* *Service Charge 50c***

Building and uses of the famous M-3 medium tank, a real lift to any audience to see how our production plants are forging the armaments of victory. Effective narration by Orson Welles.

LAKE CARRIER

No. 1109 *10 min.* *(434)* *Service Charge 50c***

The importance of transportation on the Great Lakes as a military highway that supplies the great steel furnaces of the Middle West so that the soldiers may have the weapons essential for victory. Inspiring and educational narrative by Frederic March. (OWI)

MEN AND THE SEA

No. 1111 *10 min.* *(333)* *Service Charge 50c***

Training of the men of the U. S. Merchant Marine, who get the guns to the place where they're needed. Important and interesting to all audiences concerned with training opportunities, schools, labor groups.

MANPOWER

No. 1127 *9 min.* *Service Charge 50c***

This year 10,000,000 more Americans must go to work! Paul V. McNutt outlines the problem and suggests steps to meet it. Especially effective when shown to older civilians, women and high school youth. (OWI)

POWER FOR DEFENSE

No. 1086 *10 min.* *Service Charge 50c***

Excellent and inspiring story of how great power plants in Tennessee Valley make possible production of munitions, clothing and other military needs.

WOMEN IN DEFENSE

No. 1087 *10 min.* *Service Charge 50c***

In factories, laboratories, and social services, women are shown to be occupying a constantly expanding role. (OWI)

For films sponsored by non-government agencies, see Cols. 183-184 ☛

"Sponsored" Films

The following "sponsored" motion pictures generally contain some mention of the sponsor's name, product or purpose, but the "advertising" is not of an objectionable nature. Service charges apply on films marked § when ordered alone, they are waived when such films are booked in connection with a program rented at regular catalog rates. Unlike government films, however, their use does not qualify borrowers for reduced "annual service" rates, unless regular minimum quotas are met.

AMERICA—FIRST IN THE AIR

No. F66 20 min. Service Charge $1§

Curtiss-Wright film, narrated by Lowell Thomas. Shows how cylinder heads are molded and machined, 424 gears to each plane engine with over 8000 parts and over 50,000 inspections. Shrink fits via dry ice. Wright "Whirlwind" engine pulled down for re-inspection.

CURTISS-WRIGHT ANSWERS CALL FOR QUANTITY

No. F-65 20 min. Service Charge $1§

Trip through mass production airplane factory, work goes on twenty-four hours a day. Good demonstration of production control. Useful and instructive despite some advertising.

CURTISS-WRIGHT BUILDS FOR AIR SUPREMACY

No. F-64 20 min. Service Charge $1§

Greatly expanded factories produce amazingly intricate propellers on mass scale. Narration by Lowell Thomas. Some institutional plugging but very useful.

LOOK TO LOCKHEED

No. F60 30 min. Service Charge $1§

Good historical and process presentation of aviation industry. Superlative material outweighs some over-emphasis in advertising. (Lockheed)

COAL FOR VICTORY

*No. F-27 8 min. Service Charge 50c***

How coal is produced. Must be conserved for victory. Suggestions on saving. (Bit. Cons. Counsel)

POWER FOR THE NATION

No. F-19 35 min. Service Charge $1§

Modern methods of producing, washing and transporting coal for industrial and domestic use. (N. & W. R.R.)

FOREST TREASURE

No. F34 30 min. GHYJT (333) *Service Charge $1§*

Lumbering by modern methods and production of veneers.

WILLARD AND YOU

No. F43 3 reels GHYJT *Service Charge $1§*

Manufacture of electrical storage battery, from raw material to completed unit, and its many applications in science and industry. (Willard Storage Battery Co.)

YESTERDAY, TODAY AND TOMORROW

No. F56—Sound 32 min. GHYJT *(333) Service Charge $1.50§*

History of food canning interestingly and authoritatively presented, episodes include first efforts in 1795 to feed Napoleon's armies, application of first tin can in England 1810. commercialization in Boston 1829, Pasteurization discovered 1857, modern canning industry begun after Civil War.

EVER SINCE EDEN

No. F69 30 min. Service Charge $1§

Story of the tomato, from time of Cortez to the Heinz cannery. Historical background, then detailed process story. Some advertising, but well done.

BOOK OF BOOKS

No. F46 1 reel GHYJT *Service Charge $1§*

Excellent educational presentation of the publishing of the world's perennial "best seller," the Holy Bible.

SEEING FINGERS

No. F45 3 reels GHYJT *Service Charge $1.50§*

Another, very different type of "publishing"—the production of Braille books and writing outfits for the blind. Every person should see this inspiring picture. (National Braille Press)

FASHION HORIZONS

C-F 61 Color-Sound 2 reels Service Charge $1§

A TWA Stratoliner vacation through the Southwest; beautiful girls, gorgeous scenery and the latest fashions in clothes and planes. A number of Paramount starlets take the leading parts.

HONEYMOON FLIGHT

C-F 63 Color-Sound 2 reels Service Charge $1§

Interrupted Hollywood-to-New York honeymoon, with views of TWA Stratoliner and Pan-American Clipper.

VISION FOR DEFENSE

No. F-67 20 min. (433) Service charge $1§

Importance of eyesight to life and defense, common eye deficiencies and how they are corrected by glasses. How optical glass is made and lenses are ground.

GOOD GOLF

No. F62 35 min. GHYT *Service Charge $1§*

Instructional demonstrations by Van Snead, Ralph Guldahl, Gene Sarazen, Johnny Revolta. And of special interest to the many thousands of women golfers—Helen Dettweiler, Opal Hill and Helen Hicks. (Wilson)

KEYSTONE OF GOLF

No. F59 28 min. GHYT *(322) Service Charge $1§*

Animation combined with straight photography makes it possible for an outstanding group of golf stars, headed by Bobby Jones, to illustrate all the major essentials of the game so that anyone can understand what SHOULD be done. (Spalding)

CHAMPIONS OF THE GRIDIRON

No. F52 5 reels GHYJT *Service Charge $1.25§*

Football as it is played in the National Professional League. Technical and informative studies of the fundamentals of the game as practised by the professional stars. Highlights of the colorful All Star game as well as a review of the teams in action during the 1938 season. (General Mills, Inc.)

BLAME IT ON LOVE

No. F57 50 min. (444) Service Charge $1§

Fascinating dramatization of modern kitchen work. One of the finest of sponsored films. (Hotpoint)

HUSBANDS ARE GOOD FOR SOMETHING

No. F44 4 reels GHYJT *Service Charge $1§*

Young heroine concocts many appetizing recipes to win contest from her snobbish super-expert sister. (Coolerator Corp.)

NORGING AHEAD

No. F25 3 reels GHYJT *Service Charge $1§*

What a smart housewife does when boss brings wife to dinner unexpectedly. (Norge Division, Borg-Warner Corp.)

SCIENCE OF SEEING

No. F24 2 reels GHYJT *Service Charge $1§*

Needs and measurements on home and office illumination. (General Electric Co.)

CHICKEN OF THE SEA

No. CF-58 21 min. GHYJT (433) *Service Charge $1§*

Catching, canning and preparing tuna for our tables. Excellent color, thrilling sea scenes, connected story. From "three-pole" tuna to enticing salad. (California Packing)

WAR AGAINST WASTE

No. F71 20 min. Service Charge $1§

Saving and reclamation of all kinds of waste materials in modern industry. Very effective. (Caterpillar Tractor)

OFFICE OF WAR INFORMATION
Bureau of Motion Pictures

Supplement to
"War Films for War Use"

BLACK MARKETING (11 minutes)

A dramatization of an actual case taken from the files of the Office of Price Administration, typical of hundreds of other cases, this film shows just how the black market operates and how it is defeated by cooperation of the public with the OPA and local law-enforcement officials.

COAST GUARD SPARS (6 minutes)

"Join the SPARS and release a man for sea." This film shows just what this slogan means--in the vital and interesting work now being performed by women in uniform so that the Coast Guardsmen they replace are freed for sea duty.

DAY OF BATTLE (10 minutes)

This is the story of an aircraft carrier - how she was built and how she was destroyed in battle against the Japanese in the South Pacific. It is a camera record of American iron ore - steel - tungsten - manganese, American courage, brought together for a few supreme hours to make an important day in American history.

FARMER AT WAR (11 minutes)

The war production program of the farmers of America is illustrated in this film, picturing how the farmers of Lancaster County, Pennsylvania, are managing by working longer hours and cooperating with their neighbors to meet the need for the greatest output of farm products possible, at a time when there is a serious labor and tool shortage.

IT'S EVERYBODY'S WAR (16 minutes)

The effect of the war upon one American community. In the story of what the people of that town are doing to help win the war, there is an example of what everyone can do. Narrated by Henry Fonda, Produced by 20th Century Fox.

MISSION ACCOMPLISHED (10 minutes)

The story of the first all-American raid over occupied Europe. American crews, piloting their Flying Fortresses, attack the railroad yards at Rouen, and return safely to their base in England.

OUR ENEMY--THE JAPANESE (20 minutes)

This film gives an insight into the resources and industries, religion, military training, lives and minds of the people of Japan. It tells what our enemy in the Pacific is really like. Produced by the March of Time for the U. S. Navy. Narrated by former American Ambassador to Japan Joseph C. Grew.

RIGHT OF WAY (7 minutes)

Through the night a troop train, a freight train, and a truck rush to a convoy scheduled to sail early the next morning, to deliver the goods on time. An explanation of why the civilian public must be inconvenienced at times in its traveling so that materials of war will not arrive too late.

SUGGESTION BOX (10 minutes)

In war plants all over the country workers are being encouraged to submit suggestions which will effect a saving in time, labor and materials, thus enabling production to be increased. This film presents several examples of how workers' suggestions have resulted in improved methods of manufacture.

THREE CITIES (10 minutes)

This film is the story of three typical American cities, one seafaring, one manufacturing, and one rural, and how the war-workers in each tackled a problem of wartime living, and found a solution.

U. S. NEWS REVIEW: Issue No. 5 (16 minutes)

This issue contains five timely stories: Safety rules for women war workers, an absenteeism cartoon, care for children of working mothers, 1000-plane raid on the German seaport of Bremen, and the Army Air Corps Song.

WHEN WORK IS DONE (9 minutes)

This is the story of what is happening to many American small towns in war time. Into hundreds of communities, ill-equipped to handle the influx, thousands of people have poured to take work in war plants. Sylacauga, Alabama, was a town which had this problem, but licked it with effective planning by working out a program which got people together.

WINGS UP (22 minutes)

The story of the twelve weeks of discipline, concentrated study, and hard work leading to graduation from the Officers' Candidate School of the U. S. Army Air Forces and the rank of second lieutenant. Narrated by Captain Clark Gable. Produced by the U. S. Army Air Forces.

December, 1943

See p. 1, 3, 5, 7

WAR FILMS
for
WAR USE

Motion Pictures for War Use in

- ***Schools***
- ***Churches***
- ***Factories***
- ***Civilian defense***
- ***Parents groups***
- ***Community gatherings***
- ***Business clubs***
- ***Labor unions***
- ***Farmer meetings***
- ***Women's clubs***
- ***Fraternal groups***

OFFICE OF WAR INFORMATION
Bureau of Motion Pictures
Washington, D. C.

JUNE, 1943

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OFFICE OF WAR INFORMATION motion pictures inform the American people of the status and progress of the war and indicate how they, as individuals, can help in the war effort. These motion pictures, all of them 16mm sound films, are available to schools and colleges, churches, business and service clubs, civic organizations, war plants, labor unions, farmers, civilian defense groups, women's clubs, community gatherings. Office of War Information films are meant to be seen by the American people. They are being seen by the American people--millions every month.

v v v

What films are available?

OFFICE OF WAR INFORMATION films cover the fighting fronts and the home front. They point up the issues of the war and clarify the nature of our enemies. They build an understanding and a respect for our Allies in China, in Britain, in Russia, and around the world. They drive home dramatically and positively what Americans are doing and must do for Victory.

Here are the subjects covered by OWI films:

Our fighting forces

Food for Fighters
Jap Zero
Letter from Bataan
Men and the Sea
Paratroops
Ring of Steel
Swim and Live
Target for Tonight
Troop Train
Winning Your Wings

The people of our Allies

Brazil at War
Dover
Listen to Britain
Report from Russia
Target for Tonight
The Thousand Days
Western Front
The World at War

The nature of our enemies

The Arm Behind the Army
Divide and Conquer
The World at War

The production front

Aluminum
The Arm Behind the Army
Building a Bomber
Building a Tank
Bomber
Conquer by the Clock
Lake Carrier
Tanks

The farm front

Democracy in Action
The Farm Garden
Henry Browne, Farmer
Home on the Range

The home front

Campus on the March
Japanese Relocation
Keeping Fit
Letter from Bataan
Manpower
Out of the Frying Pan into the Firing Line
Safeguarding Military Information
Salvage
Spirit of '43
Wartime Nutrition
Women in Defense

News reviews	Song shorts
U.S. News Review #2	Anchors Aweigh
U.S. News Review #3	Caissons Go Rolling Along
U.S. News Review #4	Coast Guard Song
	Keep 'Em Rolling
	Marines' Hymn

v v v

How can films be obtained?

OFFICE OF WAR INFORMATION films can be obtained from 191 different distributors located throughout the entire United States as well as in Alaska and Hawaii--commercial film companies, university film libraries, state and city school systems. A complete list of these distributors is given on pages 8 - 15.

There is no rental fee on Office of War Information films, but distributors may make a nominal service charge not exceeding 50 cents for the first film and 25 cents for each additional film included in a single shipment. There are two exceptions to this rule: TARGET FOR TONIGHT and THE WORLD AT WAR, both of them 5-reel pictures. Consult your distributor for service charges on these two films.

Office of War Information films can also be purchased from Castle Films at the extremely low price of seven or eight dollars a reel, the exact price depending upon the footage of the picture. Not all OWI films can be purchased. If you are interested in purchasing OWI films, write directly to Castle Films, Inc., R. C.A. Building, New York City.

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How should the films be used?

There are no hard and fast rules for the use of Office of War Information films. The pictures are meant to be seen by the American people everywhere--in cities, towns, villages....in Oregon, Oklahoma, Ohio....in factories, clubs, schools, churches, civilian groups of all kinds. Wherever there is a gathering of Americans, there is an audience for war films.

OFFICE OF WAR INFORMATION films are available--see pages 3-7; they are accessible--see pages 8-15. Their uses are many, their goal is one: Every civilian a fighter!

OFFICE OF WAR INFORMATION FILMS

The following motion pictures are available now--June 1, 1943. All are 16mm sound films. Three or four new pictures will be released in June, in July...throughout the year. Keep in touch with your 16mm film distributor.

ALUMINUM (9 minutes)*
The manufacture of aluminum--from the transmutation of bauxite into alumina and thence into aluminum sheeting.

THE ARM BEHIND THE ARMY (10 minutes)
The stakes of American labor and American industry in this war--freedom, security, life itself. An official War Department film, produced by the Signal Corps of the U. S. Army.

BOMBER (10 minutes)
The manufacture, speed, and power of the B-26 Army bomber. Commentary specially written by Carl Sandburg. "As a production it ranks with the finest documentary films ever made."...Hollywood Reporter.

BRAZIL AT WAR (10 minutes)*
The vast resources of Brazil, now a member of the United Nations, are turned to war against the Axis. Presented by the Office of the Coordinator of Inter American Affairs. Narrated by Edward Tomlinson, NBC radio commentator.

BUILDING A BOMBER (20 minutes)*
An educational exposition of the building of the B-26 Army bomber of interest primarily to engineering and vocational schools.

BUILDING A TANK (20 minutes)*
The construction of the M-3 Army tank, including technical details of manufacture.

✓ CAMPUS ON THE MARCH (19 minutes)
Wartime activities being carried on in American colleges and universities. Across the screen march young men and women being prepared for war today and for peace tomorrow.

CONQUER BY THE CLOCK (11 minutes)
Dramatic portrayal of the results of carelessness in war production--the death of an American soldier in the Southwest Pacific, of American airmen in the North Atlantic. Produced by RKO.

DEMOCRACY IN ACTION (11 minutes)
Food and the farmer's role in winning the war. A U.S. Department of Agriculture presentation of democratic methods being used to increase the production of milk, meat, and grain.

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*Available from most, but not all distributors.

DIVIDE AND CONQUER (14 minutes)
The Nazis at work deliberately spreading hate and fear, distrust and confusion among the French people. A sober and dramatic reminder that this war is being fought on civilian as well as military fronts. Produced by Warner Brothers.

DOVER (10 minutes)
The spirit of the people of England, offensive-minded with Commandos raiding Nazi strongholds, soldiers rehearsing tank tactics, the R.A.F. roaring overhead bound for German targets. Narrated by Edward R. Murrow, CBS radio commentator.

THE FARM GARDEN (20 minutes)*
Planning, planting, cultivating, and harvesting a farm garden with special emphasis upon vegetables to be planted, control of pests, and hard work. Produced by U. S. Department of Agriculture. A Kodachrome film.

FOOD FOR FIGHTERS (10 minutes)
The Science of nutrition goes to war as the Quartermaster Corps of the U. S. Army makes sure that American soldiers are the best fed army in the world.

HENRY BROWNE, FARMER (11 minutes)
A simple down-to-earth story of a Negro family in wartime--what they are doing individually and collectively to win the war. Produced by the U. S. Department of Agriculture. Narrated by Canada Lee.

HOME ON THE RANGE (11 minutes)
The Western range country and its importance in the war--mutton and wool, beef and leather necessary for Victory. A U. S. Department of Agriculture tribute to the men of the workaday West--honest, independent, tough.

JAPANESE RELOCATION (9 minutes)
American democracy at work moving 100,000 Japanese, two-thirds of them American citizens, from the Pacific Coast to inland settlements in Arizona, Colorado, and Wyoming.

JAP ZERO (20 minutes)
A plane is in your sights: Is it friend or enemy? P-40 or Jap Zero? A training film in aircraft identification emphasizing the keen sight and quick decisions required of American airmen. Produced by the U.S. Army Air Forces.

KEEPING FIT (10 minutes)
Demonstration of the wartime effects of sickness--absences, idle production lines, fewer planes--and an explanation of five simple rules of health. Produced by Universal Pictures.

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*Available from most but not all distributors.

LAKE CARRIER (9 minutes)
Transportation of iron ore from the Mesabi ranges of Minnesota across the Great Lakes to the steel mills of Gary, Pittsburgh, and Youngstown. Narrated by Fredric March.

A LETTER FROM BATAAN (14 minutes)
A glimpse of the conditions under which American soldiers lived and died on Bataan, and a dramatic plea for civilians at home to conserve rubber, save fats, and use food carefully--so that other American soldiers will be prepared. Produced by Paramount.

LISTEN TO BRITAIN (20 minutes)
A remarkable factual record of the many sounds and sights of wartime Britain--from the roar of Spitfires to the shouting of children--and an eloquent tribute to the everyday people of England. Produced by the Crown Film Unit for the British Ministry of Information.

MANPOWER (8 minutes)
The need for men and women in war industries. Problems and confusions now existing, and the methods being used to recruit, train, and re-train the workers necessary for Victory. Introduction by Paul McNutt.

MEN AND THE SEA (10 minutes)
Training the men who man our cargo ships carrying food, munitions, and supplies throughout the world. Presented by the United States Maritime Commission and dedicated to American merchant seamen.

NEGRO COLLEGES IN WARTIME (8 minutes)*
Wartime activities being carried on in America's Negro colleges, from Army classes in automotive mechanics to scientific experimentation in laboratories.

OUT OF THE FRYING PAN INTO THE FIRING LINE (3 minutes)*
Pluto and Minnie Mouse, two of America's favorite characters, show why and how to save fats and greases. A Walt Disney production in Technicolor.

PARATROOPS (9 minutes)
Terse and factual actual account of the training given our Soldiers of the Sky--jumping, falling, guiding a 'chute, landing, coming up fighting--and with special companies, skiing for winter warfare.

THE PRICE OF VICTORY (13 minutes)
With candor and conviction, Henry A. Wallace, Vice President of the United States, explains the ideals we are fighting for and the price we must pay for Victory. "We who fight in the people's cause will never stop until that cause is won." Produced by Paramount.

REPORT FROM RUSSIA (8 minutes)
Russia's "secret weapon" is the strength of the Russian people--the men, women, and children who punctured forever the myth of German invincibility.

*Available from most, but not all distributors.

RING OF STEEL (10 minutes)
A tribute to the American soldiers who have protected our country from 1776 to 1943, forging a "ring of steel" around American democracy. Narrated by Spencer Tracy.

SAFEGUARDING MILITARY INFORMATION (10 minutes)
Dramatic exposition of the results of careless talk—a ship torpedoed, a train wrecked. The need for secrecy by soldiers and civilians. Produced by the Signal Corps of the U. S. Army in cooperation with the Motion Picture Academy of Arts and Sciences.

SALVAGE (7 minutes)
The need for salvaging metals, rubber, and greases to be turned into materials of war. Narrated by Donald Nelson, Chairman, War Production Board. "You have hidden treasure in your home—more precious to your country than gold."

THE SPIRIT OF '43 (6 minutes)*
Like most Americans this year, Donald Duck is torn between two conflicting impulses—to spend or to save. Like all patriotic Americans, he makes his decision, steps up to the income-tax window, and pays his taxes "to bury the Axis." A Walt Disney production in Technicolor.

SWIM AND LIVE (20 minutes)*
Training soldiers of the U. S. Army, soon to be sailing through submarine-infested waters, to swim so that they may live—how to jump from a ship without splintering a leg, how to make shirts and trousers into life preservers, how to swim through burning oil. Produced by the U.S. Army Air Forces.

TANKS (10 minutes)
Manufacture and performance of the M-3 Army tank. Narrated by Orson Welles. "In telling the tale of how the M-3 medium tank is assembled, tested, and shipped overseas, all the component factors are fused into an outstanding reel."...Film Daily.

TARGET FOR TONIGHT (48 minutes)
A thrilling true story of a bombing raid over Germany by the R.A.F. One of the finest pictures of the war. "Quickens the pulse and cheers the heart."...New York Times.

THE THOUSAND DAYS (21 minutes)
Canada's remarkable achievements during three years of war and an inspiring tribute to the resolute spirit of Canadians, each one doing his utmost, all working together for Victory. Produced by Associated Screen Studios.

TROOP TRAIN (11 minutes)
Moving the 201st Armored Division—tanks, trucks, half tracks, motorcycles, jeeps, guns, and men—across the country from "X" to "Y".

*Available from most, but not all distributors.

U. S. NEWS REVIEW: Issue No. 2 (19 minutes)
Five interesting and newsworthy stories: discouraging unnecessary civilian travel; mobile laundry for front-line soldiers; completion of the Alcan highway to Alaska; jungle fighting in New Guinea; and the Marines' Hymn.

U. S. NEWS REVIEW: Issue No. 3 (19 minutes)
Six stories of universal interest: testing a new plywood bomber, the Mosquito; civilians learn to "fixit"; occupation of Milne Bay in New Guinea; Liberators blast Naples; letter from a war worker whose son was killed in action; and the Coast Guard song, "Semper Paratus."

U. S. NEWS REVIEW: Issue No. 4 (17 minutes)
Fighting on Timor northwest of Australia; Army salvage of obsolete equipment; protecting Britain's books; wartime fishing; Russian-German fighting in the Caucasus; and an Australian novelty song, "Thingummybob."

WARTIME NUTRITION (10 minutes)
Simple rules of eating to be followed by Americans at home, in factories, in restaurants and careterias.

WESTERN FRONT (21 minutes)
China's heroic fight and desperate struggle against the war lords of Japan. A tribute to the courage and tenacity of the people of China--fighting with us in the battle for freedom.

WINNING YOUR WINGS (18 minutes)
Lieutenant James Stewart of the Army Air Forces explains the work of the air forces, the requirements for enlistment, and the reasons for volunteering. Produced by Warner Brothers and presented by the U. S. Army Air Forces. "Probably the most inspiring film of its sort yet released."...Chicago Daily News

✓ WOMEN IN DEFENSE (10 minutes)*
Women at work in wartime--in science, in industry, in voluntary services. Narrated by Katharine Hepburn.

THE WORLD AT WAR (44 minutes)*
A graphic history of the years 1931-1941--from the Japanese invasion of Manchuria in 1931 to the bombing of Pearl Harbor ten years later. The pattern of aggression in China, Ethiopia, Spain, Poland, Belgium, Holland, and France.

Song Shorts (3 minutes each)
ANCHORS AWEIGH
CAISSONS GO ROLLING ALONG
KEEP 'EM ROLLING
COAST GUARD SONG
MARINES' HYMN
Stirring songs sung "off screen" against backgrounds of appropriate action scenes. For audience participation, words of the songs are superimposed.

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*Available from most, but not all distributors.

DISTRIBUTORS OF OFFICE OF WAR INFORMATION FILMS

Alabama

Birmingham Public Schools
Dept. of Visual Instruction
Birmingham, Alabama

Wilfred Naylor
1907 North Fifth Avenue
Birmingham, Alabama

University of Alabama
Extension Division
Tuscaloosa, Alabama

Arizona

University of Arizona
Extension Division
Tucson, Arizona

Arkansas

State Dept. of Education
Little Rock, Arkansas

California

University of California
Extension Division
Berkeley, California

Bell and Howell Company
716 North LaBrea Avenue
Hollywood, California

Board of Education
Visual Education Service
Los Angeles, California

County of Los Angeles
Superintendent of Schools
808 N. Spring Street
Los Angeles, California

William M. Dennis
2506½ W. Seventh Street
Los Angeles, California

Defense Council
Film Bureau
86 City Hall
Los Angeles, California

Films, Inc.
1709 W. Eighth Street
Los Angeles, California

Ideal Pictures Corporation
2408 W. Seventh Street
Los Angeles, California

University of California
Extension Division
813 S. Hill Street
Los Angeles, California

Audiofilms Company
262 Scenic-Piedmont
Oakland, California

Oakland Public Schools
Visual Education Dept.
Oakland, California

Pasadena City Schools
Library and Visual Service
1501 East Villa Street
Pasadena, California

County of San Diego
Visual Education Dept.
1813 Adams Avenue
San Diego, California

San Diego City Schools
Visual Instruction Center
San Diego, California

Photo and Sound, Inc.
153 Kearney Street
San Francisco, California

Y.M.C.A. Motion Picture
Bureau
351 Turk Street
San Francisco, California

Colorado

University of Colorado
Bureau of Visual Instruction
Boulder, Colorado

Akin and Bagshaw, Inc.
1425 Williams Street
Denver, Colorado

Denver Public Schools
Department of Research
and Vocational Education
Denver, Colorado

Ideal Pictures Corporation
1739 Oneida Street
Denver, Colorado

University of Denver
Film Center
Denver, Colorado

Connecticut

Hebert Studios, Inc.
53 Allyn Street
Hartford, Connecticut

University of Connecticut
Audio-Visual Aids Center
Storrs, Connecticut

Delaware

Milton H. Hill, Inc.
922 Shipley Street
Wilmington, Delaware

District of Columbia

Bell and Howell Company
1221 G Street, N. W.
Washington, D. C.

Paul L. Brand
816 Connecticut Avenue, N. W.
Washington, D. C.

District of Columbia Public
Schools
Visual Instruction Dept.
Washington, D. C.

Florida

Gordon S. Cook
1126 S. E. Fourth Street
Fort Lauderdale, Florida

University of Florida
Dept. of Visual Instruction
Gainesville, Florida

Ideal-Southern 16mm Pictures Co.
705 Exchange Building
Jacksonville, Florida

Southern 16mm Pictures Co.
172 N. E. 96th Street
Miami, Florida

Georgia

Board of Education
Atlanta Area War Film Service
City Hall
Atlanta, Georgia

Distributor's Group, Inc.
756 W. Peachtree, N. W.
Atlanta, Georgia

Reagan Visual Education Co.
Rhodes Building
Atlanta, Georgia

Russell C. Roshon
Rhodes-Haverty Building
Atlanta, Georgia

Stevens-Ideal Pictures Corp.
89 Cone Street, N. W.
Atlanta, Georgia

University System of Georgia
Division of General Extension
Atlanta, Georgia

Hawaii

University of Hawaii
Honolulu, Hawaii

Idaho

University of Idaho
Extension Service
Boise, Idaho

Idaho (Cont'd)
University of Idaho
Southern Branch
Univ. Educational Film Library
Pocatello, Idaho

Illinois
Bell and Howell Co.
1801 Larchmont Avenue
Chicago, Illinois

College Film Center
84 East Randolph Street
Chicago, Illinois

Films, Inc.
64 East Lake Street
Chicago, Illinois

Ideal Pictures Corporation
28 East Eighth Street
Chicago, Illinois

Russell C. Roshon
188 West Randolph Street
Chicago, Illinois

Y.M.C.A. Motion Picture Bureau
19 South LaSalle Street
Chicago, Illinois

University of Illinois
Visual Aids Service
Champaign, Illinois

Western Ill. State Teachers College
Western Cooperative Library
Macomb, Illinois

The Venard Organization
Peoria, Illinois

Indiana
Indiana University
Bureau of Audio-Visual Aids
Bloomington, Indiana

Modern Talking Picture Service
615 North Illinois Street
Indianapolis, Indiana

Purdue University
Lafayette, Indiana

Ball State Teachers College
Teaching Materials Service
Muncie, Indiana

Burke's Motion Picture Co.
428½ Lincoln Way West
South Bend, Indiana

Indiana State Teachers College
Extension Division
Terre Haute, Indiana

Dennis Film Bureau, Inc.
29 East Maple Street
Wabash, Indiana

Iowa
Iowa State College
Visual Instruction Service
Ames, Iowa

Pratt Sound Film Service
Cedar Rapids, Iowa

Eastin 16mm Pictures Co.
Davenport, Iowa

State University of Iowa
Bureau of Visual Instruction
Iowa City, Iowa

Kansas
Fort Hays Kansas State College
Extension Division
Hays, Kansas

University of Kansas
Bureau of Visual Instruction
Lawrence, Kansas

Central Visual Education Service
Broadview Hotel Building
Wichita, Kansas

Kentucky
D. T. Davis Company
231 West Short Street
Lexington, Kentucky

Kentucky (Cont'd)

University of Kentucky
Bureau of Audio-Visual Aids
Lexington, Kentucky

Louisiana

Southwestern Louisiana
Institute
Film Service
Lafayette, Louisiana

Louisiana State Normal College
Film Service
Natchitoches, Louisiana

Harfilms, Inc.
600 Baronne Street
New Orleans, Louisiana

Orleans Parish School Board
Division of Audio-Visual Aids
New Orleans, Louisiana

Louisiana Polytechnic Institute
Film Service
Ruston, Louisiana

Maine

University of Maine
Cooperative Film Association
Orono, Maine

Stanley Dana Corporation
Portland, Maine

Maryland

Kunz Motion Picture Service
219 West Franklin Street
Baltimore, Maryland

Stark Films
Howard and Centre Streets
Baltimore, Maryland

Massachusetts

Boston University
School of Education
Boston, Massachusetts

Cinema, Inc.
234 Clarendon Street
Boston, Massachusetts

Commonwealth of Massachusetts
Department of Education
Boston, Massachusetts

J. H. Dunlop Company
172 Newberry Street
Boston, Massachusetts

Visual Education Service, Inc.
131 Clarendon Street
Boston, Massachusetts

Michigan

University of Michigan
Bureau of Visual Education
Ann Arbor, Michigan

Cosmopolitan Film Libraries
3248 Gratiot Avenue
Detroit, Michigan

W. D. Engleman Company
701 West Warren
Detroit, Michigan

Michigan Office of Civilian Defense
Motion Picture Section
300 North Grand Avenue
Lansing, Michigan

Minnesota

Elliott Film Company
72 Glenwood Avenue
Minneapolis, Minnesota

Film Preview, Inc.
1504 Hennepin Avenue
Minneapolis, Minnesota

Russell C. Roshon
535 Andrus Building
Minneapolis, Minnesota

University of Minnesota
Bureau of Visual Instruction
Minneapolis, Minnesota

Department of Education
Coordinator War Emergency
Activities
St. Paul, Minnesota

Mississippi

State Board of Education
War Film Coordinator
Jackson, Mississippi

Missouri

South East Missouri State
Teachers College
Cooperative Film Library
Cape Girardeau, Missouri

University of Missouri
Visual Education Service
Columbia, Missouri

Kansas City Public Schools
Dept. of Visual Instruction
Kansas City, Missouri

Kansas City Sound Service Co.
926 McGee Street
Kansas City, Missouri

Russell C. Roshon
Midland Building
Kansas City, Missouri

Board of Education
Educational Museum
St. Louis, Missouri

Pictosound Movie Service
4416 Donovan Avenue
St. Louis, Missouri

Russell C. Roshon
Louderman Building
St. Louis, Missouri

Swank Motion Pictures
620 North Skinker Avenue
St. Louis, Missouri

Montana

State of Montana
Dept. of Public Instruction
Helena, Montana

Campbell Films
Manhattan, Montana

Nebraska

University of Nebraska
Bureau of Audio-Visual Aids
Lincoln, Nebraska

Modern Sound Pictures, Inc.
1219 Farnam Street
Omaha, Nebraska

New Hampshire

University of New Hampshire
Photo-Visual Service
Durham, New Hampshire

A. H. Rice and Company
P. O. Box 205
Hollis, New Hampshire

New Jersey

Audio-Film Libraries
656 Bloomfield Avenue
Bloomfield, New Jersey

Board of Education
Dept. of Library and Visual Aids
Newark, New Jersey

The Princeton Film Center
410 Nassau Street
Princeton, New Jersey

New Mexico

University of New Mexico
Extension Division
Albuquerque, New Mexico

New York

Board of Education
Visual Education Department
Buffalo, New York

Buchan Pictures
79 Allen Street
Buffalo, New York

Bell and Howell Company
30 Rockefeller Plaza
New York, New York

Brandon Films, Inc.
1600 Broadway
New York, New York

New York

King Cole's Sound Service, Inc.
203 East 26th Street
New York, New York

Films, Inc.
330 West 42nd Street
New York, New York

Walter O. Gutlohn, Inc.
25 West 45th Street
New York, New York

Institutional Cinema Service, Inc.
1560 Broadway
New York, New York

Mogull's Inc.
68 West 48th Street
New York, New York

New York University Film Library
Washington Square
New York, New York

Russell C. Roshon
2506 RKO Building
Radio City
New York, New York

Bertram Willoughby Pictures
1600 Broadway
New York, New York

Y.M.C.A. Motion Picture Bureau
347 Madison Avenue
New York, New York

John E. Allen, Inc.
6 George Street
Rochester, New York

Board of Education
Dept. of Visual & Radio Ed.
Rochester, New York

Syracuse University
Educational Film Library
Syracuse, New York

Ideal Motion Picture Service
393 St. John's Avenue
Yonkers, New York

North Carolina

University of North Carolina
Bureau of Visual Instruction
Chapel Hill, North Carolina

National Film Service
14 Glenwood Avenue
Raleigh, North Carolina

North Dakota

North Dakota Agricultural College
Dept. of Correspondence Study
Fargo, North Dakota

Ohio

Board of Education
Department of Visual Aids
Akron, Ohio

Ralph V. Haile and Associates
215 Walnut Street
Cincinnati, Ohio

Cincinnati Public Schools
Visual Aids Exchange
Cincinnati, Ohio

Manse Film Library
1521 Dana Avenue
Cincinnati, Ohio

Cleveland Public Library
325 Superior Avenue
Cleveland, Ohio

Cleveland Public Schools
Educational Museum
Cleveland, Ohio

Sunray Films Company
2108 Payne Avenue
Cleveland, Ohio

Twyman Films, Inc.
29 Central Avenue
Dayton, Ohio

Board of Education
Lima, Ohio

Board of Education
Visual Education Department
Toledo, Ohio

Ohio (Cont'd)

Cousino Visual Education Service
2854 Scottwood Avenue
Toledo, Ohio

Oklahoma

East Central State College
District Coordinator-War Films
Ada, Oklahoma

University of Oklahoma
Visual Education Department
Norman, Oklahoma

Camera Shoppe
2301 Classen Boulevard
Oklahoma City, Oklahoma

H. O. Davis
522 N. Broadway
Oklahoma City, Oklahoma

Southeastern State College
Durant, Oklahoma

Oklahoma Visual Education Service
1100 N.W. 22nd Street
Oklahoma City, Oklahoma

Oregon

Oregon State System of
Higher Education
Dept. of Visual Instruction
Corvallis, Oregon

Films, Inc.
314 S. W. Ninth Avenue
Portland, Oregon

Owens-Ideal Pictures
Drawer H
Portland, Oregon

Portland Public Schools
Dept. of Visual Education
Portland, Oregon

Pennsylvania

Kunz Motion Picture Service
1319 Vine Street
Philadelphia, Pennsylvania

Russell C. Roshon
Fox Theatre Building
Philadelphia, Pennsylvania

Philadelphia Council of Defense
Film Division
Broad Street Station
Philadelphia, Pennsylvania

School District of Philadelphia
Dept. of Visual Education
Philadelphia, Pennsylvania

Pennsylvania College for Women
PCW Film Service
Pittsburgh, Pennsylvania

Pittsburgh Public Schools
Dept. of Visualization
Pittsburgh, Pennsylvania

Russell C. Roshon
520 State Theatre Building
Pittsburgh, Pennsylvania

Pennsylvania State College
Audio-Visual Aids Service
State College, Pennsylvania

Kunz Motion Picture Service
Uniontown, Pennsylvania

Clem Williams Films
403 Pitt Bank Building
Pittsburgh, Pennsylvania

Rhode Island

Department of Public Schools
Visual Education
Providence, Rhode Island

South Carolina

University of South Carolina
Audio-Visual Aids Bureau
Columbia, South Carolina

South Dakota

University of South Dakota
Extension Division
Vermillion, South Dakota

Tennessee

Tennessee Valley Authority
Information Office
Knoxville, Tennessee

University of Tennessee
Division of University Extension
Knoxville, Tennessee

Ideal Pictures Corporation
18 South Third Street
Memphis, Tennessee

Russell C. Roshon
88 Madison at Main
Memphis, Tennessee

Texas

Texas Visual Education Co.
305 West 10th Street
Austin, Texas

University of Texas
Visual Instruction Bureau
Austin, Texas

National-Ideal Pictures, Inc.
2204 Main Street
Dallas, Texas

Russell C. Roshon
Gulf States Building
Dallas, Texas

Y.M.C.A. Motion Picture Bureau
1700 Patterson Avenue
Dallas, Texas

Texas Technological College
Dept. of Visual Instruction
Lubbock, Texas

Utah

Brigham Young University
Bureau of Visual Instruction
Provo, Utah

Vermont

University of Vermont
Robert Hull Fleming Museum
Burlington, Vermont

Virginia

Commonwealth of Virginia
State Board of Education
Richmond, Virginia

Washington

Central Washington College
of Education
Office of Visual Education
Ellensburg, Washington

State College of Washington
Bureau of Visual Teaching
Pullman, Washington

King County Schools
310 County-City Building
Seattle, Washington

Rarig Motion Picture Company
5514 University Way
Seattle, Washington

Seattle Public Schools
Supervisor of Visual Education
810 Dexter Avenue
Seattle, Washington

Spokane Public Schools
Dept. of Audio-Visual Education
Spokane, Washington

Tacoma-Pierce County Film
Library
Central School Building
Tacoma, Washington

West Virginia

University of West Virginia
Film Division Library
Morgantown, West Virginia

Wisconsin

University of Wisconsin
Bureau of Visual Instruction
Madison, Wisconsin

Photoart House
844 N. Plankinton Avenue
Milwaukee, Wisconsin

Wyoming

University of Wyoming
Cooperative Film Library
Laramie, Wyoming

OFFICE MEMORANDUM

OFFICE OF WAR INFORMATION

To: Miss Mary V. Robinson
Director of Information
Women's Bureau
Department of Labor

Date: 4/20/43

From: Roberta N. Cook RNC

Subject: WOMANPOWER

Here is a review of WOMANPOWER from Modern Industry, which you may be interested in having for reference.

Incl.
Review of WOMANPOWER

Miss Lea —
[illegible]

MODERN INDUSTRY--April 15, 1943

WOMANPOWER is as crucial a problem for industry as is manpower for the Army. And Womanpower, made by the Army Air Forces at Allis-Chalmers Mfg. Co.'s turbosupercharger plant, has many of the answers for management men who still have doubts--stated or unstated--as to the necessity or wisdom of hiring women.

The women who make these superchargers aren't limited to lightweight production or inspection jobs. The film takes you through the plant and, along with the commentary, reveals that there are few jobs women can't do as well as or better than men.

The film not only shows how women are doing these jobs, but also is full of valuable tips on how the operation of the plant and its policies can be geared to use of women.

There are excellent newsreel clips to introduce the film, emphasizing the fact that as the men go into the armed services, industry has a responsibility and an opportunity in the hiring and training of women to take over the jobs the men left.

The the real impact of the film comes from seeing in action a plant that's "manned" mostly by women.

They receive incoming materials and inspect them. In the laboratories, they're even better technicians than men. In the plant they run lathes, drill presses, multiple drills, hammers, forges, trucks, cranes. In fact, they do almost every job that men would ordinarily handle except those that require exceptional physical strength. And even here the film points out that there are women husky enough to handle a good many heavy jobs.

The fact that women do work patiently and carefully makes them excellent for precision operations. It is pointed out, however, that management shouldn't automatically give women purely routine operations to do day in and day out. Unless there is variety in the job assigned to them, they should be switched to other tasks occasionally.

Training new workers is no exceptional problem at Allis-Chalmers, the film points out. The camera picks out girl after girl (and they're real people and not glamor girls doing glamor jobs) who has quickly picked up the skill her job requires:

A thread-grinder who is just three weeks out of the dime store.

A Negro girl who's doing okay on a lathe within two days after entering the plant.

Women, the film points out, perform all 24 operations required to finish a small part, including forging.

Good lighting, good uniforms and safety equipment, wood block floors that are easy on the feet, rest periods of 15 minutes twice a day, permission to smoke at their machines (just as men do), clean locker and shower rooms, counsellors to whom the girls can turn with their personal problems or grievances . . . all these things and more are shown as part of the problem of hiring, training, and keeping women workers.

The film runs about 20 minutes--most of them full of punch.

Distribution of the 16-mm sound picture is being handled by the Technical Data Laboratory, Engineering Division, Wright Field, Dayton, Ohio.

Robinson

A List of
U. S. WAR INFORMATION FILMS

WOMEN'S BUREAU
1943
OF LABOR

OFFICE OF WAR INFORMATION
Bureau of Motion Pictures
Washington, D. C.

April 1943

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To borrow any of the films listed on the following pages:

1. Note the method of distribution and the name and address of the distributor under which the film is listed. *Write directly to that distributor.*
2. Note that conditions for borrowing prints are listed for each group of films.
3. In practically all cases, exhibitors are asked to pay transportation charges to and from points of exhibition.
4. It is best to give an alternate choice of films if possible, and an alternate date. *Definite dates must be given.* Be sure that your first choice and alternate films are both from the same agency or distributor.
5. Try to make your requests for films at least 3 weeks in advance.
6. Specify whether you need 16 or 35 mm. films. All of the films listed are sound productions. *Do not attempt* to run a 16 mm. sound picture on a silent projector.
7. If there is no express office in your town, please indicate the nearest town which does have express service.
8. *Please return films promptly.* Borrowers are held responsible for any damage.

Office of Education

Where to obtain films: Distributed on sales basis by Castle Films, Inc., 30 Rockefeller Plaza, New York City (also Chicago, Illinois, and San Francisco, California). Film libraries are encouraged to purchase prints so that they may be made available on a rental basis to interested groups.

Who may buy: General public.

Loan of prints: From film libraries on rental basis.

Purchase: Write to Castle Films, Inc., for a price list.

Aviation Training Films

1-135 Aircraft Engines—Types, Mechanisms, and Oiling Systems
1-136 Aircraft Engines—Elements of Electricity as Applied to Ignition Systems
1-137 Aircraft Engines—Carburetion
1-174 Aircraft Hydraulic Systems—Part I—BC-1 Airplane
1-211 Airplane Structures—Part I—Structural Units—Materials and Loads for Which Designed
1-212 Airplane Structures—Part II—Wing Construction
1-213 Airplane Structures—Part III—Fuselage Construction
1-214 Airplane Structures—Part IV—Control Surfaces
1-215 Airplane Structures—Part V—Alighting Gear
1-323 Airplane Structures—Part VI—Manufacturing Methods
1-312 Airplane Structures—Part VII—Static Testing
1-566 Servicing the Aviation Spark Plug
1-246 Aircraft Propellers—Part I—Principles and Types
1-451 Aircraft Propellers—Part VII—Hamilton Hydromatic Propeller—Theory and Operations
1-162 Airplane Hydraulic Brakes—Part I—Principles of Operation
1-305 Airplane Hydraulic Brakes—Part II—Types, Construction, and Action
1-133 Modern Weather—Theory and Structures of Storms—Part I—Primary Circulation
1-134 Modern Weather—Theory and Structures of Storms—Part II—Development and Characteristics of Atmospheric Waves
1-290 Celestial Navigation—Part I—Introduction and Location of Celestial Points
1-204 Celestial Navigation—Part II—Principles of Celestial Navigation—Position Finding on the Earth
1-245 Aerial Navigation—Part I—Maps and the Compass
1-327 Aerial Navigation—Part IV—Radio Aids
1-328 Aerial Navigation—Part V—Airways Flying
MN-83a-BG Celestial Navigation—The Earth
MN-83b-BG Celestial Navigation—Charts
MN-83c-BG Nautical Astronomy
1-474 Airplane Radio Antennas—The Creation and Behavior of Radio Waves
1-160 Aerodynamics—Air Flow
1-161 Aerodynamics—Forces Acting on an Air Foil
MN-40a-AH The WEFT System of Aircraft Identification—Basic Characteristics
MN-40b-AH The 3-Point System of Identification of Surface Vessels
MN-40c-AH Identification of Air and Surface Vessels—The WEFT System of Aircraft Identification—Special Characteristics
MN-66-J Doping Technique
MN-70-J Useful Knots
MN-73-J Flashing Light Signals
MN-142-J Drilling in Metal, Wood, or Plastics
MN-201a-P Close Order Drill

Industrial Training Films

Precision Measurement

1. The Steel Rule
2. The Micrometer
3. Fixed Gages
4. Vernier Scale
5. Height Gages and Test Indicators

The Engine Lathe

6. Rough Turning Between Centers
7. Turning Work of Two Diameters
8. Cutting a Taper with Compound Rest and Taper Attachment
9. Drilling, Boring and Reaming Work Held in Chuck
10. Cutting an External National Fine Thread
44. Turning a Taper with Tailstock Set Over
45. Cutting an External Acme Thread

The Milling Machine

11. The Milling Machine
12. Cutting Keyways
13. Straddle and Surface Milling to Close Tolerances
14. Straddle Milling
15. Plain Indexing and Cutting a Spur Gear

Vertical Boring Mill

16. Rough Facing, Turning and Drilling on a Vertical Turret Lathe
17. Rough Facing, Boring and Turning a Shoulder
18. Facing, Turning, Boring, Grooving, Chamfering on a Vertical Turret Lathe Using Two Heads

The Shaper

19. Cutting a Keyway on End of a Finished Shaft
20. Machining a Cast Iron Rectangular Block
21. Machining a Tool Steel V Block

The Radial Drill

22. Drilling and Tapping Cast Steel
23. Drilling to a Layout and Spotfacing Cast Iron

Shipbuilding Skills

✓ 24. Preparing and Setting a Keel Block and Bottom Cradle

Shipbuilding Skills—Continued

25. Innerbottom Sections:
    - Sub Assembly of a Closed Floor
    - Sub Assembly of an Open Floor
26. The Innerbottom: Setting up Floors and Longitudinals
27. Side Frames: Sub Assembly of a Web Frame
28. Deck Girders: Sub Assembly
29. The Deck: Setting a Web Frame and a Transverse Beam
30. The Bulkhead: Laying Off the Boundary Stiffeners, Water Lines, and Buttock Lines
31. The Bulkhead: Laying Off and Fitting a Centerline Stiffener
32. The Bulkhead: Setting a Transverse Watertight Bulkhead Into the Hull
33. Deck Plates: Regulating and Setting

Bench Work

34. Cutting Threads With Taps and Dies
35. Scraping Flat Surfaces
36. Fitting and Scraping Small Bearings
37. Reaming With Straight Hand Reamers
38. Reaming With Taper Hand Reamers
39. Centering Small Stock
40. Laying Out Small Castings
41. Fundamentals of Filing

Single Point Cutting Tools

42. Fundamentals of Side Cutting Tools
43. Fundamentals of End Cutting Tools

The Sensitive Drill

46. Drilling a Hole in a Pin

The Vertical Drill

47. Locating Holes, Drilling and Tapping in Cast Iron
48. Countersinking, Counterboring, and Spot Facing

Office of War Information

Bureau of Motion Pictures

Where to obtain films: From distributors listed below.

Who may borrow: Any responsible group or organization.

Loan of prints: Distributors are permitted to make a service charge to the user not to exceed 50¢ for the first subject and 25¢ for each additional subject included in a single shipment. (An exception is TARGET FOR TONIGHT, for which a service charge not to exceed $2.50 is permitted.) Transportation costs are additional.

Purchase: Write to Castle Films, Inc., 30 Rockefeller Plaza, New York City (also Chicago, Illinois, and San Francisco, California), for price list of subjects available for purchase.

35 mm. Prints: Write directly to the Office of War Information Film Unit, 35 West 45th Street, New York City. (Note that 35 mm. prints are not available for all subjects.)

***Aluminum** (1 reel, 9 minutes, 16 and 35 mm., sound, 1941). A behind-the-scenes story of our most strategic metal, the importation of bauxite, its transmutation into alumina and thence into aluminum sheeting and subsequently into fighting planes.

The Arm Behind the Army (1 reel, 10 minutes, 16 mm., sound, 1942). The stakes of American labor and American industry in this war—freedom, security, life itself. An official War Department film, produced by the Signal Corps of the U. S. Army.

Bomber (1 reel, 10 minutes, 16 and 35 mm., sound, 1941). The manufacture, speed, and power of the B–26 Army bomber. Commentary specially written by Carl Sandburg. "As a production it ranks with the finest documentary films ever made." —*Hollywood Reporter.*

***Building a Bomber** (2 reels, 20 minutes, 16 and 35 mm., sound, 1942). An educational exposition on the building of the B–26 Army bomber, of considerable interest to engineering schools, vocational groups, and educational organizations eager to learn how our skyfighters are made.

***Building a Tank** (2 reels, 20 minutes, 16 and 35 mm., sound, 1942). The speed-up of the tank production program, including technical details regarding construction and processes involved in the manufacture of the M–3 medium tank.

Campus on the March (1 reel, 19 minutes, 16 and 35 mm., sound, 1942). Wartime activities being carried on in American colleges and universities. Across the screen march young men and women being prepared for war today and for peace tomorrow.

Democracy in Action (1 reel, 11 minutes, 16 mm., sound, 1942). Food and the farmer's role in winning the war. A U. S. Department of Agriculture presentation of democratic methods being used to increase the production of milk, meat, and grain.

Divide and Conquer (1 reel, 14 minutes, 16 and 35 mm., sound, 1942). The Nazis at work deliberately spreading hate and fear, distrust and confusion among the French people. A sober and dramatic reminder that this war is being fought on civilian as well as military fronts. Produced by Warner Brothers.

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* Not available from all distributors.

Dover, (1 reel, 10 minutes, 16 mm., sound, 1942). The spirit of England, of the people of England, offensive-minded with Commandos raiding Nazi strongholds, soldiers rehearsing tank tactics, the R. A. F. roaring overhead bound for German targets. Narrated by Edward R. Murrow, CBS radio commentator.

***Henry Browne, Farmer** (1 reel, 11 minutes, 16 mm., sound, 1942). A simple down-to-earth story of a Negro family in wartime—what they are doing individually and collectively to win the war. Produced by the U. S. Department of Agriculture. Narrated by Canada Lee.

Home on the Range (1 reel, 11 minutes, 16 mm., sound, 1942). The Western range country and its importance in the war—mutton and wool, beef and leather necessary for Victory. A U. S. Department of Agriculture tribute to the men of the workaday West—honest, independent, tough.

Japanese Relocation (1 reel, 9 minutes, 16 and 35 mm., sound, 1943). American democracy at work moving 100,000 Japanese, two-thirds of them American citizens, from the Pacific Coast to inland settlements in Arizona, Colorado, and Wyoming.

√ **Keeping Fit** (1 reel, 10 minutes, 16 and 35 mm., sound, 1943). Absenteeism, today one of the Nation's number one problems, is the theme of this film. Robert Stack, Broderick Crawford, Andy Devine, Irene Hervey, and other familiar players present entertainingly the five simple rules of health that can reduce this problem. Produced by Universal Pictures.

Lake Carrier (1 reel, 9 minutes, 16 and 35 mm., sound, 1942). Transportation of iron ore from the Mesabi ranges of Minnesota across the Great Lakes to the steel mills of Gary, Pittsburgh, and Youngstown. Narrated by Fredric March.

Listen to Britain (2 reels, 20 minutes, 16 mm., sound, 1942). A remarkable factual record of the many sounds and sights of wartime Britain—from the roar of Spitfires to the shouting of children—and an eloquent tribute to the everyday people of England. Produced by the Crown Film Unit for the British Ministry of Information.

Manpower (1 reel, 8 minutes, 16 and 35 mm., sound, 1942). The need for men and women in war industries. Problems and confusions now existing, and the methods being used to recruit, train, and retrain the workers necessary for Victory. Introduced by Paul V. McNutt.

Men and the Sea (1 reel, 10 minutes, 16 mm., sound, 1942). Training the men who man our cargo ships carrying food, munitions, and supplies throughout the world. Presented by the United States Maritime Commission and dedicated to American merchant seamen.

***Negro Colleges in Wartime** (1 reel, 8 minutes, 16 mm., sound, 1943). Wartime activities being carried on in America's Negro colleges, from Army classes in automotive mechanics to scientific experimentation in laboratories.

***Out of the Frying Pan Into the Firing Line** (⅓ reel, 3 minutes, 16 and 35 mm., sound, color). Walt Disney's familiar characters, Minnie Mouse and Pluto, show how every housewife can help to defeat the Axis by saving fats and greases to be made into explosives.

The Price of Victory (1 reel, 13 minutes, 16 and 35 mm., sound, 1942). With candor and conviction, Henry A. Wallace, Vice President of the United States, explains the ideals we are fighting for and the price we must pay for Victory.

Ring of Steel (1 reel, 10 minutes, 16 and 35 mm., sound, 1942). A tribute to the American soldiers who have protected our country from 1776 to 1943, forging a "ring of steel" around American democracy. Narrated by Spencer Tracy.

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*Not available from all distributors.

√ **Safeguarding Military Information** (1 reel, 10 minutes, 16 and 35 mm., sound, 1942). Dramatic exposition of the results of careless talk—a ship torpedoed, a train wrecked. The need for secrecy by soldiers and civilians. Produced by the Signal Corps of the U. S. Army in cooperation with the Motion Pictures Academy of Arts and Sciences.

Salvage (1 reel, 7 minutes, 16 and 35 mm., sound, 1942). The need for salvaging metals, rubber, and greases to be turned into materials of war. Narrated by Donald Nelson, Chairman, War Production Board. "You have hidden treasure in your home—more precious to your country than gold."

Song Shorts (⅓ reel, 3 minutes each, 16 and 35 mm., sound, 1942):

Anchors Aweigh
The Caissons Go Rolling Along
Keep 'Em Rolling
Marines' Hymn

Stirring songs sung "off screen" against backgrounds of appropriate action scenes. For audience participation, words of the songs are superimposed.

***Spirit of '43** (1 reel, 6 minutes, 16 and 35 mm., sound, color, 1943). Donald Duck, confronted by the problem we all face of spending for the Axis or saving for taxes, learns what his taxes will buy and makes his choice. A Walt Disney film.

Tanks (1 reel, 10 minutes, 16 and 35 mm., sound, 1942). Manufacture and performance of the M–3 Army tank. Narrated by Orson Welles. "In telling the tale of how the M–3 medium tank is assembled, tested, and shipped overseas, all the component factors are fused into an outstanding reel."—*Film Daily.*

***Target for Tonight** (5 reels, 48 minutes, 16 mm., sound). A thrilling true story of a bombing raid over Germany by the R. A. F. "The finest picture to come out of the war."—Quentin Reynolds in *Collier's*. "Quickens the pulse and cheers the heart."—*New York Times.*

The Thousand Days (2 reels, 21 minutes, 16 mm., sound, 1943). Canada has been at war since September 1939—over 3 years, a thousand days. What changes have taken place in Canada during this time? What does Canada's experience forecast for us in the United States? These questions are answered dramatically in this motion picture. Made by Associated Screen Studios.

U. S. News Review: Issue No. 1 (2 reels, 21 minutes, 16 mm., sound, 1942). An official Government motion-picture review of war information. Six subjects are included in the first issue: Women at war, the President's war flag, Malta, increased coal production, war in the Pacific, and wartime harvests.

U. S. News Review: Issue No. 2 (2 reels, 19 minutes, 16 mm., sound, 1943). This issue covers five subjects: Unnecessary travel, mobile laundry for front line troops, the Alcan Highway, jungle fighting in New Guinea, and the Marines' Hymn.

Western Front (2 reels, 21 minutes, 16 mm., sound, 1942). China's heroic fight and desperate struggle against the war lords of Japan. A tribute to the courage and tenacity of the people of China—fighting with us in the battle for freedom.

Winning Your Wings (1 reel, 18 minutes, 16 and 35 mm., sound, 1942). Lt. James Stewart of the Army Air Forces explains the work of the air force, the requirements for enlistment, and the reasons for volunteering. Produced by Warner Brothers and presented by the U. S. Army Air Forces. "Probably the most inspiring film of its sort yet released."—*Chicago Daily News.*

***Women in Defense** (1 reel, 10 minutes, 16 and 35 mm., sound, 1942). An exposition of the various roles women are assuming in the war effort. Principal sequences show women of science, women in industry, and women in the voluntary services. Commentary written by Mrs. Franklin D. Roosevelt and narrated by Katharine Hepburn.

***Not available from all distributors.**

DISTRIBUTORS

ALABAMA:

Birmingham Public Schools
Dept. of Visual Education
Birmingham, Alabama

Wilfred Naylor
1907 North Fifth Avenue
Birmingham, Alabama

†University of Alabama
Extension Division
Tuscaloosa, Alabama

ARIZONA:

†University of Arizona
Extension Division
Tucson, Arizona

ARKANSAS:

†Arkansas State Teachers College
Dept. of Public Relations
Conway, Arkansas

CALIFORNIA:

†University of California
Extension Division
Berkeley, California

Bell and Howell Company
716 North LaBrea Avenue
Hollywood, California

Board of Education
Visual Education Service
Los Angeles, California

County of Los Angeles
Superintendent of Schools
808 N. Spring Street
Los Angeles, California

William M. Dennis
2506½ W. Seventh Street
Los Angeles, California

Films, Inc.
1709 W. Eighth Street
Los Angeles, California

Ideal Pictures Corporation
2408 W. Seventh Street
Los Angeles, California

University of California
Extension Division
813 S. Hill Street
Los Angeles, California

Audiofilms Company
262 Scenic-Piedmont
Oakland, California

Oakland Public Schools
Visual Education Dept.
Oakland, California

County of San Diego
County Visual Education Dept.
1813 Adams Avenue
San Diego, California

San Diego City Schools
Visual Instruction Center
San Diego, California

Photo and Sound, Inc.
153 Kearny Street
San Francisco, California

†Y. M. C. A. Motion Picture Bureau
351 Turk Street
San Francisco, California

COLORADO:

†University of Colorado
Bureau of Visual Instruction
Boulder, Colorado

Akin and Bagshaw, Inc.
1425 Williams Street
Denver, Colorado

Denver Public Schools
Department of Research and Vocational Education
Denver, Colorado

Ideal Pictures Corporation
1739 Oneida Street
Denver, Colorado

†University of Denver
Film Center
Denver, Colorado

CONNECTICUT:

Hebert Studios, Inc.
53 Allyn Street
Hartford, Connecticut

†University of Connecticut
Audio-Visual Aids Center
Storrs, Connecticut

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†Also distribute films of the Coordinator of Inter-American Affairs listed on pages 12–14.

DELAWARE:

†Milton H. Hill, Inc.
922 Shipley Street
Wilmington, Delaware

DISTRICT OF COLUMBIA:

Bell and Howell Company
1221 G Street, N. W.
Washington, D. C.

†Paul L. Brand
816 Connecticut Avenue, N. W.
Washington, D. C.

District of Columbia Public Schools
Visual Instruction Department
Washington, D. C.

FLORIDA:

Gordon S. Cook
1126 S. E. Fourth Street
Fort Lauderdale, Florida

†University of Florida
Department of Visual Instruction
Gainesville, Florida

†Ideal-Southern 16mm Pictures Co.
705 Exchange Building
Jacksonville, Florida

Southern 16mm Pictures Co.
172 N. E. 96th Street
Miami, Florida

GEORGIA:

Board of Education
Audio-Visual Aids Dept.
Atlanta, Georgia

†Distributors Group, Inc.
756 W. Peachtree, N. W.
Atlanta, Georgia

Reagan Visual Education Co.
Rhodes Building
Atlanta, Georgia

Russell C. Roshon
Rhodes-Haverty Building
Atlanta, Georgia

Stevens-Ideal Pictures Corp.
89 Cone Street, N. W.
Atlanta, Georgia

†University System of Georgia
Division of General Extension
Atlanta, Georgia

IDAHO:

†University of Idaho
Extension Service
Boise, Idaho

University of Idaho
Southern Branch
Univ. Educational Film Library
Pocatello, Idaho

ILLINOIS:

†Bell and Howell Co.
1801 Larchmont Avenue
Chicago, Illinois

College Film Center
84 East Randolph Street
Chicago, Illinois

Films, Inc.
64 East Lake Street
Chicago, Illinois

†Ideal Pictures Corporation
28 East Eighth Street
Chicago, Illinois

Russell C. Roshon
188 West Randolph Street
Chicago, Illinois

†Y. M. C. A. Motion Picture Bureau
19 South LaSalle Street
Chicago, Illinois

†University of Illinois
Visual Aids Service
Champaign, Illinois

Western Illinois State Teachers College
Western Cooperative Library
Macomb, Illinois

INDIANA:

†Indiana University
Bureau of Audio-Visual Aids
Bloomington, Indiana

Modern Talking Picture Service
615 North Illinois Street
Indianapolis, Indiana

Ball State Teachers College
Teaching Materials Service
Muncie, Indiana

Burke's Motion Picture Co.
428½ Lincoln Way West
South Bend, Indiana

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† Also distribute films of the Coordinator of Inter-American Affairs listed on pages 12-14.

†Dennis Film Bureau, Inc.
29 East Maple Street
Wabash, Indiana

IOWA:

†Iowa State College
Visual Instruction Service
Ames, Iowa

Pratt Sound Film Service
Cedar Rapids, Iowa

†Eastin 16mm Pictures Co.
Davenport, Iowa

†State University of Iowa
Bureau of Visual Instruction
Iowa City, Iowa

KANSAS:

Fort Hays Kansas State College
Extension Division
Hays, Kansas

†University of Kansas
Bureau of Visual Instruction
Lawrence, Kansas

Central Visual Education Service
Broadview Hotel Building
Wichita, Kansas

KENTUCKY:

†D. T. Davis Company
231 West Short Street
Lexington, Kentucky

†University of Kentucky
Bureau of Audio-Visual Aids
Lexington, Kentucky

LOUISIANA:

Southwestern Louisiana Institute
Film Service
Lafayette, Louisiana

Louisiana State Normal College
Film Service
Natchitoches, Louisiana

Harfilms, Inc.
600 Baronne Street
New Orleans, Louisiana

Orleans Parish School Board
Division of Audio-Visual Aids
New Orleans, Louisiana

Louisiana Polytechnic Institute
Film Service
Ruston, Louisiana

MAINE:

†University of Maine
Cooperative Film Association
Orono, Maine

Stanley Dana Corporation
Portland, Maine

MARYLAND:

Kunz Motion Picture Service
219 West Franklin Street
Baltimore, Maryland

†Stark Films
Howard and Centre Streets
Baltimore, Maryland

MASSACHUSETTS:

Boston University
School of Education
Boston, Massachusetts

Cinema, Inc.
234 Clarendon Street
Boston, Massachusetts

†Commonwealth of Massachusetts
Department of Education
Boston, Massachusetts

J. H. Dunlop Company
172 Newberry Street
Boston, Massachusetts

†Visual Education Service, Inc.
131 Clarendon Street
Boston, Massachusetts

MICHIGAN:

†University of Michigan
Bureau of Visual Education
Ann Arbor, Michigan

Cosmopolitan Film Libraries, Inc.
3248 Gratiot Avenue
Detroit, Michigan

W. D. Engleman Company
701 West Warrren
Detroit, Michigan

MINNESOTA:

Elliott Film Company
72 Glenwood Avenue
Minneapolis, Minnesota

†Film Preview, Inc.
1504 Hennepin Avenue
Minneapolis, Minnesota

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†Also distribute films of the Coordinator of Inter-American Affairs listed on pages 12-14.

Russell C. Roshon
535 Andrus Building
Minneapolis, Minnesota

†University of Minnesota
Bureau of Visual Instruction
Minneapolis, Minnesota

Department of Education
Coordinator War Emergency Activities
St. Paul, Minnesota

MISSISSIPPI:

State Board of Education
War Film Coordinator
Jackson, Mississippi

MISSOURI:

South East Missouri State Teachers College
Cooperative Film Library
Cape Girardeau, Missouri

†University of Missouri
Visual Education Service
Columbia, Missouri

Kansas City Public Schools
Dept. of Visual Instruction
Kansas City, Missouri

†Kansas City Sound Service Co.
926 McGee Street
Kansas City, Missouri

Russell C. Roshon
Midland Building
Kansas City, Missouri

Board of Education
Educational Museum
St. Louis, Missouri

Pictosound Movie Service
4416 Donovan Avenue
St. Louis, Missouri

Russell C. Roshon
Louderman Building
St. Louis, Missouri

Swank Motion Pictures
620 North Skinker Avenue
St. Louis, Missouri

MONTANA:

†State of Montana
Department of Public Instruction
Helena, Montana

†Campbell Films
Manhattan, Montana

NEBRASKA:

†University of Nebraska
Bureau of Audio-Visual Aids
Lincoln, Nebraska

Modern Sound Pictures, Inc.
1219 Farnam Street
Omaha, Nebraska

NEW HAMPSHIRE:

†University of New Hampshire
Photo-Visual Service
Durham, New Hampshire

A. H. Rice and Company
P. O. Box 205
Hollis, New Hampshire

NEW JERSEY:

Audio-Film Libraries
656 Bloomfield Avenue
Bloomfield, New Jersey

Board of Education
Dept. of Library and Visual Aids
Newark, New Jersey

†The Princeton Film Center
410 Nassau Street
Princeton, New Jersey

NEW MEXICO:

†University of New Mexico
Extension Division
Albuquerque, New Mexico

NEW YORK:

Board of Education
Visual Education Department
Buffalo, New York

Buchan Pictures
79 Allen Street
Buffalo, New York

Bell and Howell Company
30 Rockefeller Plaza
New York, New York

Brandon Films, Inc.
1600 Broadway
New York, New York

King Cole's Sound Service, Inc.
203 East 26th Street
New York, New York

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†Also distribute films of the Coordinator of Inter-American Affairs listed on pages 12–14.

†Films, Inc.
330 West 42d Street
New York, New York

†Walter O. Gutlohn, Inc.
25 West 45th Street
New York, New York

Institutional Cinema Service, Inc.
1560 Broadway
New York, New York

Mogull's Inc.
68 West 48th Street
New York, New York

†New York University Film Library
Washington Square
New York, New York

Russell C. Roshon
2506 RKO Building
Radio City
New York, New York

Bertram Willoughby Pictures
1600 Broadway
New York, New York

†Y. M. C. A. Motion Picture Bureau
347 Madison Avenue
New York, New York

†John E. Allen, Inc.
6 George Street
Rochester, New York

Board of Education
Dept. of Visual & Radio Education
Rochester, New York

†Syracuse University
Educational Film Library
Syracuse, New York

Ideal Motion Picture Service
393 St. John's Avenue
Yonkers, New York

NORTH CAROLINA:

†University of North Carolina
Bureau of Visual Instruction
Chapel Hill, North Carolina

National Film Service
14 Glenwood Avenue
Raleigh, North Carolina

NORTH DAKOTA:

†North Dakota Agricultural College
Department of Correspondence Study
Fargo, North Dakota

OHIO:

Ralph V. Haile and Associates
215 Walnut Street
Cincinnati, Ohio

Cincinnati Public Schools
Visual Aids Exchange
Cincinnati, Ohio

Manse Film Library
1521 Dana Avenue
Cincinnati, Ohio

†Cleveland Public Library
325 Superior Avenue
Cleveland, Ohio

Cleveland Public Schools
Educational Museum
Cleveland, Ohio

Sunray Films Company
2108 Payne Avenue
Cleveland, Ohio

†Twyman Films, Inc.
29 Central Avenue
Dayton, Ohio

Board of Education
Visual Education Department
Toledo, Ohio

†Cousino Visual Education Service
2854 Scottwood Avenue
Toledo, Ohio

OKLAHOMA:

East Central State College
District Coordinator-War Films
Ada, Oklahoma

†University of Oklahoma
Visual Education Department
Norman, Oklahoma

Camera Shoppe
2301 Classen Boulevard
Oklahoma City, Oklahoma

†Oklahoma Visual Education Service
1100 N. W. 22d Street
Oklahoma City, Oklahoma

OREGON:

Oregon State System of Higher Education
Dept. of Visual Instruction
Corvallis, Oregon

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†Also distribute films of the Coordinator of Inter-American Affairs listed on pages 12–14.

Films, Inc.
314 S. W. Ninth Avenue
Portland, Oregon

Owens-Ideal Pictures
Drawer H
Portland, Oregon

Portland Public Schools
Dept. of Visual Education
Portland, Oregon

PENNSYLVANIA:

†Kunz Motion Picture Service
1319 Vine Street
Philadelphia, Pennsylvania

Russell C. Roshon
Fox Theatre Building
Philadelphia, Pennsylvania

School District of Philadelphia
Dept. of Visual Education
Philadelphia, Pennsylvania

†Pennsylvania College for Women
PCW Film Service
Pittsburgh, Pennsylvania

Pittsburgh Public Schools
Department of Visualization
Pittsburgh, Pennsylvania

Russell C. Roshon
520 State Theater Building
Pittsburgh, Pennsylvania

†Pennsylvania State College
Audio-Visual Aids Service
State College, Pennsylvania

Kunz Motion Picture Service
Uniontown, Pennsylvania

RHODE ISLAND:

Department of Public Schools
Visual Education
Providence, Rhode Island

SOUTH CAROLINA:

†University of South Carolina
Audio-Visual Aids Bureau
Columbia, South Carolina

SOUTH DAKOTA:

†University of South Dakota
Extension Division
Vermillion, South Dakota

TENNESSEE:

†University of Tennessee
Division of University Extension
Knoxville, Tennessee

Ideal Pictures Corporation
18 South Third Street
Memphis, Tennessee

Russell C. Roshon
88 Madison at Main
Memphis, Tennessee

TEXAS:

†Texas Visual Education Co.
305 West 10th Street
Austin, Texas

†University of Texas
Visual Instruction Bureau
Austin, Texas

†West Texas State Teachers College
Bureau of Public Service
Canyon, Texas

National-Ideal Pictures, Inc.
2204 Main Street
Dallas, Texas

Russell C. Roshon
Gulf States Building
Dallas, Texas

†Y. M. C. A. Motion Picture Bureau
1700 Patterson Avenue
Dallas, Texas

†Texas Technological College
Department of Visual Instruction
Lubbock, Texas

UTAH:

†Brigham Young University
Bureau of Visual Instruction
Provo, Utah

VERMONT:

†University of Vermont
Robert Hull Fleming Museum
Burlington, Vermont

VIRGINIA:

†Commonwealth of Virginia
State Board of Education
Richmond, Virginia

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†Also distribute films of the Coordinator of Inter-American Affairs listed on pages 12-14.

WASHINGTON:

Central Washington College of Education
Office of Visual Education
Ellensburg, Washington

†State College of Washington
Bureau of Visual Teaching
Pullman, Washington

King County Schools
310 County-City Building
Seattle, Washington

Rarig Motion Picture Company
5514 University Way
Seattle, Washington

Seattle Public Schools
Supervisor of Visual Education
810 Dexter Avenue
Seattle, Washington

Spokane Public Schools
Dept. of Audio-Visual Education
Spokane, Washington

WASHINGTON—Continued.

Tacoma-Pierce County Film Library
Central School Building
Tacoma, Washington

WEST VIRGINIA:

University of West Virginia
Film Division Library
Morgantown, West Virginia

WISCONSIN:

†University of Wisconsin
Bureau of Visual Instruction
Madison, Wisconsin

Photoart House
844 N. Plankinton Avenue
Milwaukee, Wisconsin

WYOMING:

†University of Wyoming
Cooperative Film Library
Laramie, Wyoming

Coordinator of Inter-American Affairs

Where to obtain films: From distributors listed below and those marked (†) on pages 6–12.

Who may borrow: Any responsible group or organization.

Loan of prints: Distributors are permitted to make a service charge to the user not to exceed 50¢ for the first subject and 25¢ for each additional subject included in a single shipment.

Purchase: Not for sale.

A Line From Yucatan (1 reel, 16 mm., sound). Planters on Mexico's famed peninsula meet the opportunity to provide sisal hemp when war closes sources in the Pacific.

Americans All (2 reels, 16 mm., sound). Story of the young people who live and work and play between the Straits of Magellan and the Rio Grande River. Intended to give the people of the United States a better understanding of their little-known fellow Americans to the South. Produced and narrated by Julien Bryan.

Argentine Primer (2 reels, 16 mm., sound). Introductory study of Argentina, with emphasis on educational and economic trends.

Argentine Soil (2 reels, 16 mm., sound). Impressive evidence of the richness of Argentine natural resources. After the unusual panorama of Buenos Aires we pass to the open spaces where we see vast herds of wild horses, sheep, and cattle; then inspect magnificent cataracts and rivers, the cultivation of mate, tobacco, cotton, and fruit. Last we see an agricultural fair with prize bulls on parade.

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†Also distribute films of the Coordinator of Inter-American Affairs listed on pages 12-14

Brazil (1 reel, 16 mm., sound). A picture of three great cities—Rio de Janeiro, Santos, and Sao Paulo—and of the Amazon River Valley.

Brazil Gets the News (1 reel, 16 mm., sound). The activities of the editorial and technical departments of a great modern newspaper in Sao Paulo.

Buenos Aires and Montevideo (1 reel, 16 mm., sound). Many aspects of life in the Argentine capital and glimpses of Uruguay's chief city and its gay carnivals.

Colombia (1 reel, 16 mm., sound). The old port of Barranquilla and the fine old towns of Bogota and Cartagena, and Colombia's charming countryside.

Colombia, Crossroads of the Americas (2½ reels, 16 mm., sound). An excellent informational picture of South America's northernmost country. Shows extensively the nation, from the lowlands, over the Andes to Bogota, with its natural resources and its people.

Down Where North Begins (2 reels, 16 mm., sound, color). Most effective features of landscapes, buildings, and life in Ecuador.

Fiesta of the Hills (1 reel, 16 mm., sound). A Mexican fiesta picture produced by Ralph Gray.

Fire and Water (1 reel, 16 mm., sound). The Lenten Fiesta at Taxco, where dancers of the True Cross perform to the noise of exploding firecrackers. Also, Almalaya del Rio, where Apache dances accompany the blessing of the headwaters of the River Lerma.

High Spots of a High Country (2 reels, 16 mm., sound). The people of Guatemala and their volcanic country, with its romantic old cities, its markets and farms.

Introduction to Haiti (1 reel, 16 mm., sound, color). A visit to Port-au-Prince and the city of Cap Haitien including a trip to the ruins of the remarkable buildings erected by Henri Christophe, self-styled king of Haiti.

Jungle Quest for the Great Stone Heads (3 reels, 16 mm., sound). Discovery of long buried heroic sculpture left by the Olmecs of the state of Vera Cruz.

Mexican Moods (1 reel, 16 mm., sound, color). Scenes of incidental occurrences in Mexico—silversmiths at work, a performance of a gay dance, a song sung by one of Mexico's foremost stars, and a colorful pageant on the history of the country.

Mexico Builds a Democracy (2 reels, 16 mm., sound). Work of the Mexican Government in bringing education to its Tarascan people.

Monuments of Ancient Mexico (4 reels, 16 mm., sound). The title of this film is self-explanatory. It is especially adapted for students of archaeology and anthropology.

Orchids (1 reel, 16 mm., sound, color). The story, magnificently illustrated in color, of orchids and other tropical flora in South America.

Our Neighbors Down the Road (4 reels, 16 mm., sound). An automobile tour, much of it on the Pan-American Highway, from Caracas to the Straits of Magellan.

Pan American Bazaar (1 reel, 16 mm., sound, color). Motion pictures of the Pan-American Fair held at Macy's Department Store in New York City.

Patagonian Playground (1 reel, 16 mm., sound). The scenic beauty and summertime fun of Argentina's Nahuel Huapi Park, on the eastern slope of the Andes.

People of Two Worlds (1 reel, 16 mm., sound, color). A brief study of Yucatan, ancient and modern, with emphasis on the Mayan Indians, their old civilization and as they are now.

Roads South (2 reels, 16 mm., sound). Educational and entertaining film showing the various means of transportation in the Latin American countries.

Sky Dancers of Papantla (1 reel, 16 mm., sound). Mexico's unique Corpus Christi festival, which culminates in the headlong descent of dancers from a pole.

Sundays in the Valley of Mexico (1 reel, 16 mm., sound). Things to do and see on Sundays near Mexico City—from viewing pyramids to modern dancing.

The Bounteous Earth (1 reel, 16 mm., sound). Dances accompanying the blessing of the animals on Candlemas Day in the City of Cholula (City of Churches). The violent rites at Tlocotalapan, where a young bull is set at large to be baited by the entire community.

The Day is New (1 reel, 16 mm., sound). A day in the life of the Mexican people, picturing their varied daily activities, from dawn to night.

The Hill Towns of Guatemala (1 reel, 16 mm., sound). The fascinating life of several small towns perched on the slopes of an extinct volcanic mountain.

This is Ecuador (2 reels, 16 mm., sound). Aspects of economic and social life of the country, and its strategic position in connection with the Panama Canal Zone.

Treasure Trove of Jade (4 reels, 16 mm., sound). Further discoveries, including the largest collection of early American jade ever found.

Venezuela (1 reel, 16 mm., sound). The capital city of Caracas and the port of La Guaira, sugar plantations, and colonial forts and trails.

Venezuela Moves Ahead (3 reels, 16 mm., sound). A comprehensive portrayal of the country, including its modern buildings, radio stations, schools and classes in English. Also the life of the sturdy Andean Indians. Excellent maps describe the march of Bolivar over the Andes. Produced by Julien Bryan.

Walt Disney Sees South America (4 reels, 16 mm., sound). A motion picture diary of Walt Disney's survey of the Latin American countries.

Wooden Faces of Totonicapan (1 reel, 16 mm., sound). Guatemalan fiestas, including the breath-taking climax of Chichicastenango's famous 8-day celebration.

DISTRIBUTORS

The following depositories distribute the films listed above. For other distributors see those marked (†) on pages 6–12.

Westcott, Slade and Balcom Co.
95–99 Empire Street
Providence, Rhode Island

National School Supply Co., Inc.
515 West Broad Street
Richmond, Virginia

New Jersey State Museum
Trenton, New Jersey

Ohio State Department of Education
Columbus, Ohio

State Department of Education
Baton Rouge, Louisiana

United States Navy

Recruiting Division

Where to obtain films: Nearest U. S. Navy Recruiting Station listed below.

Who may borrow: Any responsible group or organization.

Loan of prints: Free.

Purchase: Not for sale.

American Sea Power (1 reel, 11 minutes, 16 mm., sound, 1941). Two-ocean Navy—commentary by Lowell Thomas. Shipboard routine—reveille to taps.

Eyes of the Navy (2 reels, 20 minutes, 16 mm., sound, 1940). Training aviation personnel—ashore and afloat. Air operations with the U. S. Fleet.

First Line of Defense (1 reel, 11 minutes, 16 and 35 mm., sound, 1940). Fleet maneuvers at sea.

I Am the American Bluejacket (1 reel, 3½ minutes, 16 and 35 mm., sound, 1942). What a sailor does.

Men Make the Navy—The Navy Makes Men (2 reels, 22 minutes, 16 and 35 mm., sound, 1942). The advantages to be gained by enlisting in the Navy. Narration by Lowell Thomas.

Navy Ratings (series of 12 reels, 3 minutes, each, 35 mm., sound, 1942). Answering the question "What kind of a job can I get in the Navy?"

Repair, Supply, and Relief (2 reels, 22 minutes, 16 and 35 mm., sound, 1939). Activities of the Base Force.

Service in Submarines (1 reel, 10 minutes, 16 and 35 mm., sound, 1938). Training personnel for submarine duty.

Submarines at Sea (1 reel, 11 minutes, 16 and 35 mm., sound, 1940). Submarine operations at sea.

DISTRIBUTORS

U. S. Navy Recruiting Stations

Albany, New York, Post Office Building

Baltimore, Maryland, Post Office Building

Birmingham, Alabama, Post Office and Court House Building

Boise, Idaho, Capitol Securities Building

Boston, Massachusetts, New Court House and Post Office Building

Buffalo, New York, Post Office Building

Charleston, West Virginia, Post Office Annex

Cheyenne, Wyoming, 2000 Capitol Avenue

Chicago, Illinois, Plymouth Court Building, 321 South Plymouth Court

Cincinnati, Ohio, Court House and Post Office Building

Cleveland, Ohio, Old Post Office Building

Columbia, South Carolina, First National Bank Building

Columbus, Ohio, Old Post Office Building

Dallas, Texas, Post Office and Court House

Denver, Colorado, U. S. Customs House

Des Moines, Iowa, Old Post Office Building

Detroit, Michigan, New Federal Building

Helena, Montana, Gold Block Building
Houston, Texas, Post Office Building
Indianapolis, Indiana, Post Office Building
Jackson, Mississippi, Post Office Building
Jacksonville, Florida, Post Office Building
Kansas City, Missouri, U. S. Court House
Little Rock, Arkansas, Donaghey Trust Building, 621 Main Street
Los Angeles, California, Post Office and Court House
Louisville, Kentucky, Post Office Building
Macon, Georgia, Post Office Building
Manchester, New Hampshire, Beacon Building
Memphis, Tennessee, Falls Building, 24-26 North Front Street
Miami, Florida, Postal Building
Milwaukee, Wisconsin, Plankinton Building
Minneapolis, Minnesota, Federal Office Building
Nashville, Tennessee, U. S. Court House
New Haven, Connecticut, Chamber of Commerce Building
New Orleans, Louisiana, U. S. Customs House
New York, New York, International Telephone Building
Oklahoma City, Oklahoma, Post Office Building
Omaha, Nebraska, Baird Building, 1704 Douglas Street
Philadelphia, Pennsylvania, Blackburn Building, 13 South 13th Street
Phoenix, Arizona, Heard Building
Pittsburgh, Pennsylvania, Old Federal Building
Portland, Maine, Federal Court House Annex
Portland, Oregon, Elks Temple, 620 S. W. Broadway
Providence, Rhode Island, Old Industrial Trust Building
Raleigh, North Carolina, Federal Building
Richmond, Virginia, Parcel Post Building, 11th and Main Streets
Salt Lake City, Utah, Post Office Building
San Diego, California, Post Office Building
San Francisco, California, Federal Office Building
Santa Fe, New Mexico, New City Hall Building
Seattle, Washington, Mann Building, 1411½ Third Avenue
Springfield, Illinois, State Register Building, 613 East Monroe Street
Springfield, Massachusetts, Post Office Building
St. Louis, Missouri, U. S. Court and Customs House
Toledo, Ohio, Commercial Building
Washington, D. C., City Club Building

United States Coast Guard

Where to obtain films: Nearest District Coast Guard Officer listed below, or the Coast Guard Headquarters, Washington, D. C.

Who may borrow: Any responsible group or organization.

Loan of prints: Free.

Purchase: Not for sale.

Cadet Cruise (1 reel, 10 minutes, 16 and 35 mm., sound, 1940). Illustrates the life and work of the Cadet while attending the Coast Guard Academy at New London, Connecticut, and while on a Cadet training cruise aboard a Coast Guard Cutter visiting foreign lands.

Carry the Fight (1 reel, 10 minutes, 16 and 35 mm., sound). This picture tells of the work of the Coast Guard

Cutters on Convoy duty, and at the same time emphasizes the important job being done by civilians here in America in supplying our fighting men and allies overseas.

Coast Guard Academy, The (2 reels, 17 minutes, 16 and 35 mm., sound, 1940) (2 reels, 22 minutes, 16 mm., color, sound, 1942). Illustrates the various activities comprising student life at the Coast Guard Academy at New London, Connecticut. Drills, study periods, training in small boats, machine shops, living quarters, sports, and special activities are depicted.

Coast Guard Auxiliary (1 reel, 10 minutes, 16 and 35 mm., sound). Tells something of the organization and patrol work of the members and vessels of the Coast Guard Auxiliary working in cooperation with the regular Service.

Inland Waterways (1 reel, 15 minutes, 16 mm., silent, color). Shows the general work of Coast Guard Cutters on our inland waterways, particularly the Missouri, Ohio, and Mississippi Rivers.

Men of the Coast Guard (2 reels, 30 minutes, 16 and 35 mm., sound, 1940). A general film depicting the more important activities of the Service, with special emphasis on training.

Mississippi Blackout (1 reel, 10 minutes, 16 and 35 mm., sound). This film describes the work of the Coast Guard in the Mississippi River area, in blacking out the river lights to safeguard the rivers and industrial towns from enemy air attack.

Offshore Patrol (1 reel, 10 minutes, 16 and 35 mm., sound, 1940). Shows the work of the Coast Guard men aboard sea-going cruising cutters. Scenes show actual patrol in the North Atlantic and life aboard a ship on weather patrol station.

Semper Paratus (½ reel, 4 minutes, 16 and 35 mm., sound). This short uses the Official marching song of the Coast Guard instead of narration to show a recruit being inducted into Service, some of the high lights of his training, and some of the unusual duties which he may be called upon to perform while he is in Service.

DISTRIBUTORS

District Coast Guard Officers

1st Naval District, 1401 Custom House, Boston, Massachusetts

3d Naval District, 42 Broadway, New York, New York

4th Naval District, 803 Custom House, Philadelphia, Pennsylvania

5th Naval District, Box 540, New Post Office Building, Norfolk, Virginia

6th Naval District, 149 Wentworth Street, Box 855, Charleston, South Carolina

7th Naval District, Dupont Building, Miami, Florida

8th Naval District, 327 Custom House, Canal Street, New Orleans, Louisiana

9th Naval District, Custom House, 610 South Canal Street, Chicago, Illinois

9th Naval District, 1700 Keith Building, 1620 Euclid Avenue, Cleveland, Ohio

9th Naval District, 232 Old Custom House, 8th and Olive Streets, St. Louis, Missouri

10th Naval District, San Juan, Puerto Rico

11th Naval District, Federal Building, Long Beach, California

12th Naval District, 425 Custom House, San Francisco, California

13th Naval District, 550 Federal Office Building, Seattle, Washington

13th Naval District, Ketchikan, Alaska

14th Naval District, Honolulu, Territory of Hawaii

United States Marine Corps

Where to obtain films: Nearest Marine Corps Recruiting Office listed below. If not available there, they may be secured from the Officer in Charge, Photographic Section, Marine Corps Schools, Department RF–3, Quantico, Virginia. Such requestors are asked to state the city wherein the Recruiting Office is located to which the original request was directed.

Who may borrow: Patriotic, charitable, or educational organizations.

Loan of prints: Free.

Purchase: Not for sale.

These films are loaned subject to the following regulations:

1. Requests should be directed to the Officer in Charge, Marine Corps Recruiting Office nearest the requestor. Request must be signed by an officer of the Marine Corps, public official, or an official of a patriotic, charitable, or educational organization who will assume financial responsibility for the film and guarantee its proper exhibition and prompt return. If films are not available at a Recruiting Office, they will be furnished upon request to the Officer in Charge, Photographic Section, Marine Corps Schools, Department RF–3, Quantico, Virginia.
2. Films are not loaned for commercial, private, or home use.
3. Requests should be made at least 2 weeks prior to the expected showing date. No charge is made for the loan of films, but the requestor must bear transportation costs. Films must be returned the day following the showing, and must be in one shipment.
4. The borrower agrees to prevent the copying of the film, either wholly or in part, while in his possession.
5. Films cannot be used on a program where admission or fees are charged, unless shown in licensed theaters as parts of regular programs.
6. Further loans will be denied to organizations failing to return promptly, or to pay for damage to film while in their possession.

Candidates (⅓ reel, 2 minutes, 16 and 35 mm., sound, 1942, trailer). Designed to encourage applications for entrance into Officer Candidates Class.

Candidates Class (2 reels, 16 minutes, 16 and 35 mm., sound, 1941). Candidates Class training for reserve commissions in the Marine Corps.

Flying Marines (⅓ reel, 2 minutes, 16 and 35 mm., sound, trailer). Depicts aviation training in the Marine Corps.

From Ships of the Air (1 reel, 8 minutes, 16 and 35 mm., sound, 1941). Paratroop training for Marines at Lakehurst, New Jersey.

Leathernecks on Parade (1 reel, 10 minutes, 16 and 35 mm., sound, color, 1942). Shows Marine Corps at work, on maneuvers, at sea, and on parade.

Marine Corps News, Vols. I and II (1 reel, 10 minutes each, 16 and 35 mm., sound, 1942). Newsreels of current activities of the Marine Corps.

Marines Have Landed, The (1 reel, 10 minutes, 16 and 35 mm., sound, 1942). Covers general activities of the Marines.

Pass in Review (1 reel, 10 minutes, 16 and 35 mm., sound, 1942). Current activities of the Marines.

Sharpshooting Marines (⅓ reel, 2 minutes, 16 and 35 mm., sound, trailer). Depicts Rifle Range activities.

Soldiers of the Sea (2 reels, 18 minutes, 16 and 35 mm., sound, 1939). General information on Marine Corps training.

DISTRIBUTORS

Marine Corps Recruiting Stations

Albany, New York, 411 Post Office Building
Augusta, Maine, City Hall
Birmingham, Alabama, 210 Farley Building
Boston, Massachusetts, 736 New Post Office Building
Buffalo, New York, 420 U. S. Court House
Butte, Montana, 28 West Granite Street
Charleston, West Virginia, Kanawha Hotel
Chicago, Illinois, 706 U. S. Court House
Cincinnati, Ohio, 242 Post Office Building
Cleveland, Ohio, 520 Federal Building
Dallas, Texas, 400 U. S. Terminal Annex
Denver, Colorado, 107 Old Custom House
Des Moines, Iowa, 105 Federal Building
Detroit, Michigan, 257 New Federal Building
Houston, Texas, 209 Scanlan Building
Indianapolis, Indiana, 406 Kresge Building
Jackson, Mississippi, 236 West Capitol Avenue
Kansas City, Missouri, 243 U. S. Court House
Little Rock, Arkansas, 8–12 City Hall
Los Angeles, California, G–35 U. S. Post Office and Court House
Louisville, Kentucky, 1412 Heyburn Building
Macon, Georgia, 453 Cherry Street
Milwaukee, Wisconsin, 358 Post Office Building
Minneapolis, Minnesota, Metropolitan Life Building
Nashville, Tennessee, 23 U. S. Court House
New Orleans, Louisiana, 337 New Federal Building
New York, New York, 803 Federal Office Building
Oklahoma City, Oklahoma, 326 Post Office Building
Orlando, Florida, 907 Florida Bank Building
Philadelphia, Pennsylvania, 1005 New Custom House
Phoenix, Arizona, 255 Security Building
Pittsburgh, Pennsylvania, 311 Old Federal Building
Portland, Oregon, 208 Court House
Raleigh, North Carolina, 310 Post Office Building
Salt Lake City, Utah, 230 Federal Building
San Francisco, California, 46 Federal Office Building
Savannah, Georgia, Post Office Building
Seattle, Washington, 433 Federal Office Building
Springfield, Massachusetts, Room 200, 1694 Main Street
St. Louis, Missouri, 194 U. S. Court House
Syracuse, New York, 317 New Post Office Building
Washington, D. C., 304 Post Office Building

United States Army

Recruiting and Induction Service

Where to obtain films: Nearest Main Army Recruiting Station listed below.

Who may borrow: Any responsible group or organization.

Loan of prints: Free.

Purchase: Not for sale.

Air Army (1 reel, 6 minutes, technicolor).

Army on Wheels (1 reel, 8 minutes, technicolor).

Guardian of the Colors (1 reel, 12 minutes, technicolor).

Here Comes the Cavalry (1 reel, 12 minutes, technicolor).

Look to Lockheed for Leadership (1 reel, 15 minutes, technicolor).

Service With the Colors (1 reel, 12 minutes, technicolor).

The Tanks Are Coming (1 reel, 12 minutes, technicolor).

Wings of the Army (1 reel, 15 minutes, technicolor).

Wings of Steel (1 reel, 12 minutes, technicolor).

Winning Your Wings (2 reels, 18 minutes, black and white).

DISTRIBUTORS

Main Army Recruiting Stations

First Service Command, Headquarters, Boston, Massachusetts

Portland, Maine, 463A Congress Street
Manchester, New Hampshire, 32 Water Street
Rutland, Vermont, 38½ Center Street
Boston, Massachusetts, 1065 Commonwealth Avenue
Providence, Rhode Island, 40 Fountain Street
Hartford, Connecticut, 555 Asylum Street
Springfield, Massachusetts, Post Office Building

Second Service Command, Headquarters, Governors Island, New York

New York, New York, 480 Lexington Avenue
Albany, New York, 323 Federal Building
Syracuse, New York, 355 Federal Building
Trenton, New Jersey, Post Office Building
Newark, New Jersey, Post Office Building

Third Service Command, Headquarters, Baltimore, Maryland

Baltimore, Maryland, Court Square Building
Harrisburg, Pennsylvania, 325 Market Street
Philadelphia, Pennsylvania, 607 Customs House, 2d and Chestnut Streets
Pittsburgh, Pennsylvania, 305 Old Post Office Building
Richmond, Virginia, Post Office Building

Fourth Service Command, Headquarters, Atlanta, Georgia

Jacksonville, Florida, 250 Post Office and Court House Building
Montgomery, Alabama, 519 Post Office Building
Charlotte, North Carolina, Post Office Building

Fifth Service Command, Headquarters, Fort Hayes, Columbus, Ohio

Columbus, Ohio, 315 Old Post Office Building
Cincinnati, Ohio, 4th and Vine Streets
Indianapolis, Indiana, 431 Federal Building
Charleston, West Virginia, 11 Capitol Street

Sixth Service Command, Headquarters, Chicago, Illinois

Chicago, Illinois, 166 W. Van Buren Street
Peoria, Illinois, 1701 Main Street
Milwaukee, Wisconsin, 234 North Broadway
Detroit, Michigan, 631 Federal Building
Kalamazoo, Michigan, 12 Post Office Building

Seventh Service Command, Headquarters, Omaha, Nebraska

St. Louis, Missouri, 624 New Federal Building
Kansas City, Kansas, Wyandotte Court House
Omaha, Nebraska, 224 Post Office Building
Des Moines, Iowa, 115 Old Federal Building
Minneapolis, Minnesota, 182 Federal Office Building
Denver, Colorado, 104 Old Customs Building, 16th and Arapahoe Streets

Eighth Service Command, Headquarters, Fort Sam Houston, Texas

Lubbock, Texas, 1114 Tenth Street
Dallas, Texas, 502 Federal Building
Houston, Texas, 232 Old City Hall Building
San Antonio, Texas, Builders Exchange Building, Pecan and St. Marys Streets
Santa Fe, New Mexico, 217 Post Office Building
Oklahoma City, Oklahoma, 331 Federal Building
Little Rock, Arkansas, 308½ W. 3d Street
New Orleans, Louisiana, 429 Carondlet Street

Ninth Service Command, Headquarters, Fort Douglas, Utah

San Francisco, California, 444 Market Street
Los Angeles, California, 1755 Post Office and Court House
Portland, Oregon, 323 Main Post Office Building
Salt Lake City, Utah, 223 Ness Building
Seattle, Washington, 609 Stewart Street. Lloyd Building
Butte, Montana, Old High School Building
Phoenix, Arizona, 507 Luhrs Building

U. S. Department of Agriculture

Where to obtain films: The depository in your State listed below or write the U. S. Department of Agriculture, Motion Picture Service, Washington, D. C.

Who may borrow: Any responsible group or organization.

Loan of prints: Nominal service fee. Free to Department employees and State extension workers for use in their work.

Purchase: Write to Castle Films, Inc., 30 Rockefeller Plaza, New York City (also Chicago, Illinois, and San Francisco, California), for a price list.

Democracy in Action (1 reel, 11 minutes, 16 and 35 mm., sound, 1942). Shows the vast agricultural resources of this country; the democratic procedures followed by farmers in carrying out the AAA farm program; how these procedures are helping farmers to produce more of the foods needed in the war program.

Farm Front (1 reel, 11 minutes, 16 and 35 mm., sound, 1941). A documentary picture telling the story of the American farmer in national defense. It points out the relation of his work to the American ideal of the United States as a land of opportunity for all, and shows how he is working with industry to safeguard the American Freedoms.

✓ **For Health and Happiness** (1 reel, 9 minutes, 16 mm., silent and sound, color, 1941). Discusses the vital bearing good nutrition has on human health and happiness. Shows scenes of well-nourished children from infancy to youth, and the food groups that contribute to all-around development.

On the Road to Tomorrow (1 reel, 10 minutes, 16 and 35 mm., sound, 1941). Shows the youth of many lands and different races engaged in youth activities; explains our own youth movement in the 4–H Clubs, representing the great basic industry of agriculture, its spread into many foreign lands, and the results and significance of work and training of 4–H Club members.

The Tree in a Test Tube (1 reel, 10 minutes, 16 mm., sound, color, 1942). Stan Laurel and Oliver Hardy show the many things the average man uses which are made of wood. The Forest Products Laboratory at Madison, Wisconsin, has been developing new and better uses for wood, thereby releasing metals, etc., for war needs. Shows some of the tests to which these products are subjected before they are offered for public or military war use.

Wood for War (½ reel, 5 minutes, 16 mm., sound, color, 1942). Shows many of the new uses of wood in war manufacturing and construction for civilian and military purposes. Stresses the especial need for forest-fire prevention in wartime to save manpower and timber.

DISTRIBUTORS

Alabama, Extension Service, Alabama Polytechnic Institute, Auburn

Alaska, Extension Service, University of Alaska, College

Arizona, Extension Division, University of Arizona, Tucson

Arkansas, Department of Public Relations, Arkansas State Teachers' College, Conway

California, Extension Division, University of California, Berkeley (serves northern California); Extension Division, University of California, 815 South Hill Street, Los Angeles (serves southern California)

Connecticut, Audio-Visual Aids Center, University of Connecticut, Storrs

Colorado, Bureau of Visual Instruction, University of Colorado, Boulder

Delaware, New Jersey State Museum, State House Annex, Trenton, New Jersey

Florida, Department of Visual Instruction, General Extension Div., University of Florida, Gainesville

Georgia, Division of General Extension, University System of Georgia, 223 Walton Street, N. W., Atlanta; also Extension Service, College of Agriculture, Athens

Idaho, Extension Service, College of Agriculture, University of Idaho, Boise

Illinois, Visual Aids Service, University of Illinois, Urbana

Indiana, Bureau of Visual Instruction, Extension Division, Indiana University, Bloomington

Iowa, Visual Instruction Service, Iowa State College, Ames

Kansas, Bureau of Visual Instruction, University Extension Division, University of Kansas, Lawrence

Kentucky, Department of Visual Aids, University of Kentucky, Lexington

Louisiana, Extension Service, Louisiana State University, Baton Rouge

Maryland, Extension Service, University of Maryland, College Park

Massachusetts, Extension Service, College of Agriculture, Amherst

Michigan, Extension Service, University of Michigan, Ann Arbor; also State Extension Service, Michigan State College, East Lansing

Mississippi, Extension Service, Mississippi State College, State College, Mississippi

Missouri, University Extension, University of Missouri, Columbia

Montana, Extension Service, Montana A. & M. College, Bozeman

Nebraska, University Extension Division, University of Nebraska, Lincoln

Nevada, Extension Division, University of Nevada, Reno

New Hampshire, Extension Service, University of New Hampshire, Durham

New Jersey, New Jersey State Museum, State House Annex, Trenton

New Mexico, Museum of New Mexico, Santa Fe

New York, Extension Service, College of Agriculture, Ithaca

North Carolina, Bureau of Visual Instruction, University of North Carolina, Chapel Hill

North Dakota, Department of Information, North Dakota Agricultural College, Fargo

Oregon, Department of Visual Instruction, Oregon Agricultural College, Corvallis

Oklahoma, Extension Service, A. & M. College, Stillwater

Pennsylvania, PCW Film Service, Pennsylvania College for Women, Pittsburgh

Puerto Rico, Extension Service, University of Puerto Rico, Rio Piedras

Rhode Island, Extension Service, Rhode Island State College, Kingston

South Carolina, Extension Division, University of South Carolina, Columbia

South Dakota, Extension Division, University of South Dakota, Vermillion; also Extension Service, South Dakota State College of Agriculture, Brookings

Tennessee, Division of University Extension, University of Tennessee, Knoxville

Texas, Visual Instruction Bureau, University of Texas, Austin; also Extension Service, A. & M. College of Texas, College Station

Utah, Extension Division, State College of Agriculture, Logan

Vermont, Robert Hull Fleming Museum, University of Vermont, Burlington

Virginia, Audio-Visual Education, State Board of Education, Richmond

Washington, Extension Service, State College of Washington, Pullman

West Virginia, The Library, University of West Virginia, Morgantown

Wisconsin, Bureau of Visual Instruction, University of Wisconsin, Madison

Wyoming, Cooperative Film Library, University of Wyoming, Laramie

Office of Civilian Defense

Where to obtain films: From Regional Civilian Defense Office for your State listed below.

Who may borrow: Civilian defense groups.

Loan of prints: Free.

Purchase: Write to Visual Training Section, Office of Civilian Defense, Washington, D. C., for authorization.

A New Fire Bomb (1 reel, 7 minutes, 16 mm., sound, 1942). Shows the new explosive fire bomb in action and tells how the British fight it.

An Air Raid Warden's Report (1 reel, 10 minutes, 16 mm., sound, 1943). A training film emphasizing the importance of and careful attention to the detailed report as the air raid warden's first job during an instance.

The Air Raid Warden (2 reels, 20 minutes, 16 and 35 mm., sound, 1942). Dramatizes the duties of an air raid warden and shows how he carries on during a raid.

The Control Center (4 reels, 40 minutes, 16 mm., sound, 1943). A detailed exposition of the operation of a control center, showing the functions of each of the important workers at the center and how those functions are integrated.

The Rescue Unit (2 reels, 15 minutes, 16 mm., sound, 1942). A training film showing the way a rescue unit properly plans and carries on its work.

DISTRIBUTORS

REGION I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont):
Mr. Joseph M. Loughlin, Dir.
First Civilian Defense Region
17 Court Street
Boston, Massachusetts

REGION II (Delaware, New York, New Jersey):
Mr. George S. Van Shaick, Dir.
Second Civilian Defense Region
Chanin Building, Room 807
122 East 42d Street
New York, New York

REGION III (District of Columbia, Maryland, Pennsylvania, Virginia):
Mr. Rowland K. Adams, Dir.
Third Civilian Defense Region
1554 Baltimore Trust Building
Baltimore, Maryland

REGION IV (Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee):
Mr. Charles H. Murchison, Dir.
Fourth Civilian Defense Region
Candler Building
Atlanta, Georgia

REGION V (Indiana, Kentucky, Ohio, West Virginia):
Mr. Dan T. Moore, Dir.
Fifth Civilian Defense Region
1530 Standard Building
Cleveland, Ohio

REGION VI (Illinois, Michigan, Wisconsin):
Mr. Edward J. Condon, Dir.
Sixth Civilian Defense Region
Room 1429
222 West Adams Street
Chicago, Illinois

REGION VII (Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Wyoming):
Mr. Joseph D. Scholtz, Dir.
Seventh Civilian Defense Region
808 City National Bank Building
Omaha, Nebraska

REGION VIII (Arkansas, Louisiana, New Mexico, Oklahoma, Texas):
Mr. R. E. Smith, Dir.
Eighth Civilian Defense Region
5th Floor, Mercantile Bank Building
Dallas, Texas

REGION IX (Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, Washington):
Mr. James C. Sheppard, Dir.
Ninth Civilian Defense Region
1355 Market Street
San Francisco, California

Federal Security Agency

National Youth Administration

Where to obtain films: Regional Youth Administrators of the National Youth Administration listed below.

Who may borrow: Any responsible group or organization.

Loan of prints: Free.

Purchase: Not for sale.

Training Women for War Production (1 reel, 10 minutes, 16 mm., sound, color, 1942). Illustrates how the National Youth Administration's production training program is preparing thousands of women for war industries in such occupations as machine tool operation, mechanical inspection, assembly work, radio, as well as in health and hospital work. Commentary by Mrs. Franklin D. Roosevelt.

Work Centers for Victory (1 reel, 12 minutes, 16 mm., sound, color, 1941). Shows the many work experience opportunities afforded boys and girls, white and Negro, by the National Youth Administration. Shows scenes of "experience on the job" which enables thousands of youth to obtain work in private industry.

Youth, Jobs, and Defense (1 reel, 12 minutes, 16 mm., sound, color, 1941). Depicts briefly how the NYA is providing young people with practical experience and training for jobs in war industries—some of the 400,000 NYA youth who have gone into private employment in the last 12 months are shown at work in a large aircraft plant. Melvyn Douglas provides the commentary.

The following film was produced by the Illinois National Youth Administration and may be borrowed by writing to the Regional Youth Administrator, Room 1211, New Post Office Building, 435 West Van Buren Street, Chicago, Illinois.

Youth on the Industrial Front (2½ reels, 25 minutes, 16 mm., sound, 1941). Shows boys in training in radio, machine shops, and automotive experience. Also boys actually on the job in the production of war materials.

DISTRIBUTORS

Regional NYA Officers

Maine, New Hampshire, Vermont, New York, Rhode Island, Massachusetts, Connecticut:
Leon J. Kowal, Adm.
10 Post Office Square
Boston, Massachusetts

New Jersey, Delaware, Pennsylvania:
John N. Patterson, Adm.
Perry Building
16th and Chestnut Streets
Philadelphia, Pennsylvania

District of Columbia, North Carolina, West Virginia, Virginia, Maryland:
Glenn S. Callaghan, Adm.
Atlas Building, Quarrier Street
Charleston, West Virginia

Kentucky, Michigan, Ohio:
Orin W. Kaye, Adm.
4300 Euclid Avenue
Cleveland, Ohio

Indiana, Wisconsin, Illinois:
Miss Mary S. Anderson
1211 New Post Office Building
435 West Van Buren Street
Chicago, Illinois

Georgia, Alabama, Florida, South Carolina, Tennessee, Mississippi:
Boisfeuillet Jones, Adm.
10 Forsyth Street Building
Atlanta, Georgia

Minnesota, North Dakota, South Dakota, Nebraska, Iowa:
Chester B. Lund, Adm.
44 East 6th Street
St. Paul, Minnesota

Missouri, Oklahoma, Arkansas, Kansas:
Miss Anne Laughlin, Adm.
Dierks Building
10th Street and Grand Avenue
Kansas City, Missouri

Louisiana, New Mexico, Texas:
J. C. Kellam, Adm.
714 Brown Building
Austin, Texas

Montana, Idaho, Utah, Wyoming, Colorado:
William W. Gartin, Adm.
208 Equitable Building
17th and Stout Streets
Denver, Colorado

California, Washington, Oregon, Nevada, Arizona:
W. G. Frischknecht, Adm.
333 Montgomery Street
San Francisco, California

U. S. Public Health Service

Where to obtain films: Surgeon General, U. S. Public Health Service, Washington, D. C.

Who may borrow: Any responsible group or organization. (KNOW FOR SURE is an exception. Read directions regarding this film carefully.)

Loan of prints: Free.

Purchase: Write to the Surgeon General, U. S. Public Health Service, Washington, D. C., for authorization.

About Faces (1 reel, 10 minutes, 16 and 35 mm., sound, 1941). Entertaining subject on dental health. Follows "Danny" from the cradle to his induction in the Army, stressing the importance of dental care.

Fight Syphilis (1 reel, 10 minutes; and 1 reel, 20 minutes; 16 and 35 mm., sound, 1943). Ten-minute version emphasizes the individual's role in combating syphilis—blood tests, avoiding exposure, proper treatment, the danger of quacks. Twenty-minute version includes the community's job—education, providing clinics and follow-up workers, and the cost of supporting the blind, the insane, and the unemployables crippled by syphilis. Specify version desired when ordering film.

Help Wanted (2 reels, 26 minutes, 16 mm., sound). General presentation of the basic principles of first aid, the circulatory system, improvised tourniquets, use of bandages, treatment for shock, burns, artificial respiration, splints. Produced by Johnson & Johnson in cooperation with the U. S. Public Health Service.

Prints of the following film have been made available to all State Health Offices from which they may be borrowed. It will be shown exclusively under the supervision and authority of local health departments.

Know for Sure (Venereal Disease) (1 reel, 20 minutes, 16 and 35 mm., sound, 1942). A very frank treatment, FOR MALE AUDIENCES ONLY, particularly for men in camps and war industries. Deals with prophylaxis, diagnosis, and clinical treatment. Also gives attention to follow-up treatment, sources of infection, and community control. Made in Hollywood, produced by Darryl Zanuck, directed by Lewis Milestone, for the U. S. Public Health Service.

Treasury Department

Where to obtain films: Through offices of the State Administrators of the War Savings Staff.

Who may borrow: Any responsible group or organization.

Loan of prints: Free.

Purchase: Not for sale.

Bonds at War (1 reel, 10 minutes, 16 mm., sound). Shows various types of fighting equipment and material, pointing out that the purchase of war bonds made this equipment possible, and in many instances showing the amount of War Bonds necessary to buy a particular piece of equipment. Demonstrates how this equipment is used on our various fronts.

On the War Bond Front (1 reel, 6 minutes, 16 mm., sound). Prepared particularly for showing to groups of retailers, this film details the progress of the war savings program from its inception to January 1943 with special emphasis upon the activities of retail stores.

The Price of Freedom (1 reel, 11 minutes, 16 mm., sound). Showing the establishment of the pay-roll savings plan in a large industrial plant, this film motivates the purchase of bonds and stamps by visualizing the things we are fighting to maintain.

Department of the Interior

Bureau of Mines

Where to obtain films: Write to Louis F. Perry, Supervising Engineer, Graphic Services Section, Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh, Pennsylvania, for a list of films and depositories. Obtain films from the depository nearest you.

Who may borrow: Governmental agencies, educational institutions, engineering and scientific societies, civic and business associations, clubs, churches, and other responsible organizations.

Loan of prints: Free. Borrower pays transportation charges.

Purchase: Write to Mr. Morton F. Leopold, Supervising Engineer, Motion Picture Production Section, Bureau of Mines, Washington, D. C.

The Bureau of Mines has many films, both sound and silent, in both 16 and 35 mm. widths, depicting mining operations and related manufacturing processes. They show where minerals are found and how they are extracted from the earth, manufactured or refined into useful everyday products, utilized, and conserved. The films deal with such minerals and mineral products as aluminum, asbestos, abrasives, acetylene, coal, concrete, copper, glass, iron, steel, lead, gasoline, petroleum, nickel, sulphur, and related subjects. Many of these films are made specifically for training purposes associated with training activities of the war agencies. Numerous additional films are now in production pertaining to the metallurgical and petroleum industries.

These films are produced and circulated under the direction of Allan Sherman, Chief, Information Division, Bureau of Mines, Washington, D. C. The cost of production is paid by cooperating industrial concerns. The pictures are free of trade-marks, trade names, or other direct advertising material. Production is in charge of M. F. Leopold, Supervising Engineer, Motion Picture Production Section, Bureau of Mines, Washington, D. C. Address inquires concerning production and revision to him. A complete library of all pictures is maintained at the office in Pittsburgh. For the convenience of borrowers distant from Pittsburgh, copies of certain films are deposited at subdistributing centers, selected with regard to accessibility.

Office of the Bituminous Coal Consumers' Counsel

Where to obtain films: Office of the Bituminous Coal Consumers' Counsel, Post Office Box 483, Washington, D. C.

Who may borrow: Any responsible group or organization.

Loan of prints: Free.

Purchase: Not for sale.

Coal for Victory (½ reel, 5 minutes, 16 and 35 mm., sound, 1942). Necessity and directions for conserving coal for war production.

U. S. GOVERNMENT PRINTING OFFICE: 1943

January 25, 1943.

Mr. K. P. Crowell, Director of Training,
Caterpillar Military Engine Company,
Victory Ordnance Plant,
Decatur, Illinois.

Dear Mr. Crowell:

This will supplement the letter written to you by Miss Mary Anderson in reply to your inquiry of January 15.

Enclosed is A LIST OF U. S. WAR INFORMATION FILMS which lists Office of War Information films and distributors on pages 14 - 20. Not all distributors have prints of WOMEN IN DEFENSE, and we have checked those distributors near you who do have.

U. S. NEWS REVIEW, NO. 1 has a sequence on Women at Aberdeen. An information sheet describing this film is enclosed. All distributors have prints of this subject.

The film WOMAN POWER, produced by the War Department in cooperation with the Allis Chalmers Company, is not distributed through the Office of War Information. If you are interested in this subject, you should write directly to Allis Chalmers.

Sincerely yours,

Paul C. Reed, Head,
Educational Division,
Bureau of Motion Pictures.

PCR:amb
ENC. marked catalog
inform. sheet on NEWS REVIEW I

cc: Miss Roberta Cook,
Miss Mary Robinson

Robinson

OFFICE OF WAR INFORMATION

A List of U. S. WAR INFORMATION FILMS

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NOVEMBER

OFFICE OF WAR INFORMATION
Bureau of Motion Pictures
Washington, D. C.

To borrow any of the films listed on the following pages:

1. Note the method of distribution and the name and address of the distributor under which the film is listed. *Write directly to that organization.*
2. Note that rental costs or free availability is listed under each Government agency.
3. In practically all cases, exhibitors are asked to pay transportation charges to and from points of exhibition.
4. It is best to give an alternate choice of films if possible, and an alternate date. *Definite dates must be given.* Be sure that your first choice and alternate films are both from the same agency or distributor.
5. Try to make your requests for films at least three weeks in advance.
6. Specify whether you need 16mm or 35mm films. All of the films listed are sound productions. *Do not attempt* to run a 16mm sound picture on a silent projector.
7. If there is no express office in your town, please indicate the nearest town which does have express service.
8. *Please return films promptly.* Borrowers are held responsible for any damage.

UNITED STATES ARMY

Recruiting and Induction Service

The following 16mm sound motion pictures are available free of charge at most Main Stations of the U. S. Army Recruiting and Induction Service. They may be borrowed by schools and other civic groups from the Main Army Recruiting and Induction Stations listed below.

AIR ARMY (1 reel, 6 minutes) technicolor.

ARMY ON WHEELS (1 reel, 8 minutes) technicolor.

GUARDIAN OF THE COLORS (1 reel, 12 minutes) technicolor.

HERE COMES THE CAVALRY (1 reel, 12 minutes) technicolor.

LOOK TO LOCKHEED FOR LEADERSHIP (1 reel, 15 minutes) technicolor.

SERVICE WITH THE COLORS (1 reel, 12 minutes) technicolor.

THE TANKS ARE COMING (1 reel, 12 minutes) technicolor.

WINGS OF THE ARMY (1 reel, 15 minutes) technicolor.

WINGS OF STEEL (1 reel, 12 minutes) technicolor.

WINNING YOUR WINGS (2 reels, 18 minutes) black and white.

Main Army Recruiting Stations

First Service Command	Headquarters, Boston, Mass.
Portland, Maine	463A Congress St.
Manchester, N. H.	32 Water St.
Rutland, Vt.	38½ Center St.
Boston, Mass.	1065 Commonwealth Ave.
Providence, R. I.,	40 Fountain St.
Hartford, Conn.	555 Asylum St.
Springfield, Mass.	P. O. Building

Second Service Command	Headquarters, Governors Island, N. Y.
New York, N. Y.	480 Lexington Ave.
Albany, N. Y.	323 Federal Building
Syracuse, N. Y.	355 Federal Building
Trenton, N. J.	P. O. Building
Newark, N. J.	P. O. Building

Third Service Command	Headquarters, Baltimore, Md.
Baltimore, Md.	Court Square Building
Harrisburg, Pa.	325 Market St.
Philadelphia, Pa.	607 Customs House, 2nd and Chestnut Sts.
Pittsburgh, Pa.	305 Old P. O. Building
Richmond, Va.	Post Office Building

Fourth Service Command	Headquarters, Atlanta, Ga.
Jacksonville, Fla.	250 P. O. & Court House Building
Montgomery, Ala.	519 P. O. Building
Charlotte, N. C.	P. O. Building

Fifth Service Command	Headquarters, Fort Hayes, Columbus, Ohio
Columbus, Ohio	315 Old P. O. Building
Cincinnati, Ohio	4th and Vine Sts.
Indianapolis, Ind.	431 Federal Building
Charleston, W. Va.	11 Capitol St.

Sixth Service Command	Headquarters, Chicago, Illinois
Chicago, Ill.	166 W. Van Buren St.
Peoria, Ill.	1701 Main St.
Milwaukee, Wis.	234 North Broadway
Detroit, Mich.	631 Federal Building
Kalamazoo, Mich.	12 P. O. Building

Seventh Service Command	Headquarters, Omaha, Nebraska
St. Louis, Mo.	624 New Federal Building
Kansas City, Kan.	Wyandotte Court House
Omaha, Neb.	224 P. O. Building
Des Moines, Iowa	115 Old Federal Building
Minneapolis, Minn.	182 Federal Office Building
Denver, Colorado	104 Old Customs Building, 16th and Arapahoe Sts.

ARMED FORCES (Continued)

Main Army Recruiting Stations (Continued)

Eighth Service Command — Headquarters, Fort Sam Houston, Texas

Lubbock, Texas	1114 Tenth St.
Dallas, Texas	502 Federal Building
Houston, Texas	232 Old City Hall Building
San Antonio, Texas	Builders Exchange Building, Pecan & St. Marys Sts.
Sante Fe, N. M.	217 P. O. Building
Oklahoma City, Okla.	331 Federal Building
Little Rock, Arkansas	308½ W. 3rd St.
New Orleans, La.	429 Carondlet St.

Ninth Service Command — Headquarters, Fort Douglas, Utah

San Francisco, Calif.	444 Market St.
Los Angeles, Calif.	1755 P. O. & Court House
Portland, Ore.	323 Main P. O. Building
Salt Lake City, Utah	223 Ness Building
Seattle, Wash.	609 Stewart St., Lloyd Building
Butte, Montana	Old High School Building
Phoenix, Arizona	507 Luhrs Building

UNITED STATES COAST GUARD

For the following films, write to the Coast Guard Headquarters, Washington, D. C., or to the District Coast Guard Officers listed below. They are free of charge.

CADET CRUISE (1 reel, 10 minute) 16 and 35mm, sound (1940)
Illustrates the life and work of the Cadet while attending the Coast Guard Academy at New London, Connecticut, and while on a Cadet training cruise aboard a Coast Guard Cutter visiting foreign lands.

COAST GUARD ACADEMY, THE (2 reels, 17 minutes) 16 and 35mm, sound (1940)
(2 reels, 22 minutes) 16mm, color, sound (1942)
Illustrates the various activities comprising student life at the Coast Guard Academy at New London, Connecticut. Drills, study periods, training in small boats, machine shops, living quarters, sports, and social activities are depicted.

MEN OF THE COAST GUARD (2 reels, 30 minutes) 16 and 35mm, sound (1940)
A general film depicting the more important activities of the Service, with special emphasis on training.

OFFSHORE PATROL (1 reel, 10 minutes) 16 and 35mm, sound (1940)
Shows the work of the Coast Guard men aboard sea-going cruising cutters. Scenes show actual patrol in the North Atlantic and life aboard a ship on weather patrol station.

District Coast Guard Officers

1st Naval District, 1401 Custom House, Boston, Massachusetts
3rd Naval District, 411 Custom House, New York, New York
4th Naval District, 803 Custom House, Philadelphia, Pennsylvania
5th Naval District, Box 540, New Post Office Building, Norfolk, Virginia
6th Naval District, Foot of Tradd Street, Box 855, Charleston, South Carolina
7th Naval District, Dupont Building, Miami, Florida
8th Naval District, 327 Custom House, Canal Street, New Orleans, Louisiana
9th Naval District, Custom House, 610 South Canal Street, Chicago, Illinois
9th Naval District, 1700 Keith Building, 1620 Euclid Avenue, Cleveland, Ohio
9th Naval District, 232 Old Custom House, 8th and Olive Street, St. Louis, Missouri
10th Naval District, San Juan, Puerto Rico
11th Naval District, Federal Building, Long Beach California
12th Naval District, 425 Custom House, San Francisco, California
13th Naval District, 550 Federal Office Building, Seattle, Washington
13th Naval District, Ketchikan, Alaska
14th Naval District, Honolulu, T. H.

UNITED STATES DEPARTMENT OF THE NAVY

United States Marine Corps

The following films may be obtained free of charge from the Marine Corps Recruiting Offices listed below. If they are not available from your nearest recruiting office, they may be secured by writing the Office in Charge, Photographic Section, Marine Corps Schools, Department RF-3, Quantico, Virginia.

United States Marine Corps (Continued)

These films are loaned subject to the following regulations:

1. Requests should be directed to the Officer in Charge, Marine Corps Recruiting Office nearest the requestor. Request must be signed by an officer of the Marine Corps, public official, or an official of a patriotic, charitable, or educational organization who will assume financial responsibility for the film and guarantee its proper exhibition and prompt return. If films are no not available at a Recruiting Office, they will be furnished upon further request to The Officer in Charge, Photographic Section, Marine Corps Schools, Department RF-3, Quantico, Virginia.

2. Films are not loaned for commercial, private, or home use.

3. Requests should be made at least two weeks prior to the expected showing date. No charge is made for the loan of films, but the requestor must bear transportation costs. Films must be returned the day following the showing, and must be in one shipment.

4. The borrower agrees to prevent the copying of the film, either wholly or in part, while in his possession.

5. Films can not be used on a program where admission or fees are charged, unless shown in licensed theaters as parts of regular programs.

6. Further loans will be denied to organizations failing to return promptly, or to pay for damage to film while in their possession.

CANDIDATES (1/3 reel, 2 minutes) 16 and 35mm, sound (1942) (Trailer)
Designed to encourage applications for entrance into Officer Candidates Class.

CANDIDATES CLASS (2 reels, 16 minutes) 16 and 35mm, sound (1941)
Candidates Class training for reserve commissions in the Marine Corps.

FLYING MARINES (1/3 reel, 2 minutes) 16 and 35mm, sound (Trailer)
Depicts aviation training in the Marine Corps.

FROM SHIPS OF THE AIR (1 reel, 8 minutes) 16 and 35mm, sound (1941)
Paratroop training for marines at Lakehurst, New Jersey.

LEATHERNECKS ON PARADE (1 reel, 10 minutes) 16 and 35mm, sound, color (1942)
Shows Marine Corps at work, on maneuvers, at sea, and on parade.

MARINE CORPS NEWS, VOLS. I AND II (1 reel, 10 minutes, each) 16 and 35mm, sound (1942)
Newsreels of current activities of the Marine Corps.

MARINES HAVE LANDED, THE (1 reel, 10 minutes) 16 and 35mm, sound (1942)
Covers general activities of the Marines.

PASS IN REVIEW (1 reel, 10 minutes) 16 and 35mm, sound (1942)
Current activities of the Marines.

SHARPSHOOTING MARINES (1/3 reel, 2 minutes) 16 and 35mm, sound (Trailer)
Depicts Rifle Range activities.

SOLDIERS OF THE SEA (2 reels, 18 minutes) 16 and 35mm, sound (1939)
General information on Marine Corps training.

Marine Corps Recruiting Stations

Eastern Recruiting Division

Albany, N.Y., 411 P.O. Bldg.
Augusta, Maine, City Hall
Boston, Mass., 736 New P.O. Bldg.
Buffalo, N.Y., 420 U.S. Court House
Charleston, W. Va., Kanawha Hotel
New York, N.Y., 803 Federal Office Bldg.
Philadelphia, Pa., 1005 New Custom House
Pittsburgh, Pa., 311 Old Federal Bldg.
Springfield, Mass., Room 200, 1694 Main St.
Syracuse, N.Y., 317 New P.O. Bldg.
Washington, D.C., 304 P.O. Bldg.

Central Recruiting Division

Chicago, Ill., 706 U.S. Court House
Cincinnati, Ohio, 242 P.O. Bldg.
Cleveland, Ohio, 520 Fed. Bldg.
Des Moines, Iowa, 105 Old Fed. Bldg.
Detroit, Mich., 257 New Fed. Bldg.
Indianapolis, Ind., 406 Kresge Bldg.
Kansas City, Mo., 243 U.S. Court House
Louisville, Ky., 1412 Heyburn Bldg.

Southern Recruiting Division

Birmingham, Ala., 210 Farley Bldg.
Dallas, Texas, 400 U.S. Terminal Annex
Houston, Texas, 209 Scanlan Bldg.
Jackson, Miss., 236 West Capitol Ave.
Little Rock, Ark., 8-12 City Hall
Macon, Ga., 453 Cherry St.
Nashville, Tenn., 23 U.S. Court House
New Orleans, La., 337 New Federal Bldg.
Oklahoma City, Olka., 326 P.O. Bldg.
Orlando, Fla., 907 Florida Bank Bldg.
Raleigh, N.C., 310 P.O. Bldg.
Savannah, Ga., P.O. Bldg.

Western Recruiting Division

Butte, Montana, 28 West Granite St.
Denver, Col., 107 Old Custom House
Los Angeles, Calif., G-35 U.S. Post Office and Court House
Phoenix, Ariz., 255 Security Bldg.
Portland, Ore., 208 Court House
Salt Lake City, 230 Federal Bldg.

ARMED FORCES (Continued)

Marine Corps Recruiting Stations (Continued)

Central Recruiting Division (Continued)

Milwaukee, Wis., 358 P.O. Bldg.
Minneapolis, Minn., Metropolitan Life Bldg.
St. Louis, Mo., 194 U.S. Court House

Western Recruiting Division (Continued)

San Francisco, Calif., 46 Fed. Office Bldg.
Seattle, Wash., 433 Fed. Office Bldg.

Recruiting Division, United States Navy

The following films are loaned free of charge. Write to your nearest U. S. Navy Recruiting Station as shown below:

AMERICAN SEA POWER (1 reel, 11 minutes) 16mm, sound (1941)
Two-ocean Navy--commentary by Lowell Thomas. Shipboard routine--reveille to taps.

EYES OF THE NAVY (2 reels, 20 minutes) 16mm, sound (1940)
Training aviation personnel--ashore and afloat. Air operations with the U. S. Fleet.

FIRST LINE OF DEFENSE (1 reel, 11 minutes) 16 and 35mm, sound (1940)
Fleet maneuvers at sea.

I AM THE AMERICAN BLUEJACKET (1 reel, 3½ minutes) 16 and 35mm, sound (1942)
What a sailor does.

MEN MAKE THE NAVY--THE NAVY MAKES MEN (2 reels, 22 minutes) 16 and 35mm, sound (1942)
The advantages to be gained by enlisting in the Navy. Narration by Lowell Thomas.

NAVY RATINGS (series of 12 reels, 3 minutes, each) 35mm, sound (1942)
Answering the question "What kind of a job can I get in the Navy?"

REPAIR, SUPPLY AND RELIEF (2 reels, 22 minutes) 16 and 35mm, sound (1939)
Activities of the Base Force

SERVICE IN SUBMARINES (1 reel, 10 minutes) 16 and 35mm, sound (1938)
Training personnel for submarine duty.

SUBMARINES AT SEA (1 reel, 11 minutes) 16 and 35mm, sound (1940)
Submarine operations at sea.

MAIN DISTRIBUTING CENTERS

U. S. Navy Recruiting Stations at

Albany, New York, Post Office Building
Baltimore, Maryland, Post Office Building
Birmingham, Alabama, Post Office and Court House Building
Boise, Idaho, Capitol Securities Building
Boston, Massachusetts, New Court House and Post Office Building
Buffalo, New York, Post Office Building
Charleston, West Virginia, Post Office Annex
Cheyenne, Wyoming, 2000 Capitol Avenue
Chicago, Illinois, U. S. Court House
Cincinnati, Ohio, Court House and Post Office Building
Cleveland, Ohio, Old Post Office Building
Columbia, S. C., First National Bank Building
Columbus, Ohio, Old Post Office Building
Dallas, Texas, Post Office and Court House
Denver, Colorado, U. S. Customs House
Des Moines, Iowa, Old Post Office Building
Detroit, Michigan, New Federal Building
Fargo, N. D., Post Office Building
Helena, Montana, Gold Block Building
Houston, Texas, Post Office Building
Indianapolis, Indiana, Post Office Building
Jackson, Mississippi, Post Office Building
Jacksonville, Florida, Post Office Building
Kansas City, Missouri, U. S. Court House
Little Rock, Arkansas, Federal Building
Los Angeles, California, Post Office and Court House
Louisville, Kentucky, Post Office Building
Macon, Georgia, Post Office Building
Manchester, N. H., Beacon Building
Miami, Florida, Postal Building
Milwaukee, Wisconsin, Plankinton Building
Minneapolis, Minnesota, Federal Office Building
Nashville, Tennessee, U. S. Court House
New Haven, Connecticut, Chamber of Commerce Building
New Orleans, Louisiana, U. S. Customs House
New York, New York, International Telephone Building
Oklahoma City, Oklahoma, Post Office Building
Omaha, Nebraska, Federal Office Building

Recruiting Division, United States Navy (Continued)

Philadelphia, Pennsylvania, U. S. Customs House
Phoenix, Arizona, Heard Building
Pittsburgh, Pennsylvania, Old Federal Building
Portland, Maine, Federal Court House Annex
Portland, Oregon, U. S. Court House
Providence, R. I., Old Industrial Trust Building
Raleigh, North Carolina, Federal Building
Reno, Nevada, J. R. Bradley, Building
Richmond, Virginia, Parcel Post Building, 11th and Main Streets
Salt Lake City, Utah, Federal Building
San Diego, California, Post Office Building
San Francisco, California, Federal Office Building
Santa Fe, N. M., New City Hall Building
Seattle, Washington, Federal Office Building
Sioux Falls, S. D., County Court House Annex
Springfield, Massachusetts, Post Office Building
St. Louis, Missouri, U. S. Court & Customs House
Toledo, Ohio, Commercial Building
Washington, D. C., City Club Building
Wilmington, Delaware, Post Office Building

FEDERAL SECURITY AGENCY

Office of Education

The following 16mm sound motion pictures have been made available to the Office of Education by the Army Air Forces and Navy Department. They are distributed on a sales basis by Castle Films, Inc., Rockefeller Plaza, New York, New York (also Chicago, Illinois, and San Francisco, California.) Film libraries are encouraged to purchase prints so that they may be made available on a rental basis to interested groups.

Army Air Forces

ENGINES & STRUCTURES

1-135 Aircraft Engines - Types Mechanisms and Oiling Systems
1-136 Aircraft Engines - Elements of Electricity as Applied to Ignition Systems
1-137 Aircraft Engines - Carburetion
1-174 Aircraft Hydraulic Systems - Part I - BC-1 Airplane
1-211 Airplane Structures - Part I - Structural Units - Materials and Loads for which designed
1-212 Airplane Structures - Part II - Wing Construction
1-213 Airplane Structures - Part III - Fuselage Construction
1-214 Airplane Structures - Part IV - Control Surfaces
1-215 Airplane Structures - Part V - Alighting Gear
1-312 Airplane Structures - Part VII - Static Testing
1-323 Airplane Structures - Part VI - Manufacturing Methods
1-566 Servicing the Aviation Spark Plug
1-246 Aircraft Propellers - Part I - Principles and Types
1-451 Aircraft Propellers - Part VII - Hamilton Hydromatic Propeller - Theory and operations
1-162 Airplane Hydraulic Brakes - Part I - Principles of Operation
1-305 Airplane Hydraulic Brakes - Part II - Types Construction & Action

WEATHER & NAVIGATION

1-133 Modern Weather - Theory & Structures of Storms - Part I - Primary Circulation
1-134 Modern Weather - Theory & Structures of Storms - Part II - Development & Characteristics of Atmospheric Waves
1-290 Celestial Navigation - Part I - Introduction and Location of Celestial Points
1-204 Celestial Navigation - Part II - Principles of Celestial Navigation - Position Finding on the Earth
1-245 Aerial Navigation - Part I - Maps & The Compass
1-327 Aerial Navigation - Part IV - Radio Aids
1-328 Aerial Navigation - Part V - Airways Flying

RADIO

1-474 Airplane Radio Antennas - The Creation and Behavior of Radio Waves

MISCELLANEOUS

1-160 Aerodynamics - Air Flow
1-161 Aerodynamics - Forces Acting on an Air Foil

U. S. Navy

MN-40a-AH	The WEFT System of Aircraft Identification - Basic Characteristics
MN-40b-AH	The 3-Point System of Identification of Surface Vessels
MN-66-J	Doping Technique
MN-70-J	Useful Knots
MN-575-J	Forming a Tray Bottom
MN-40c-AH	Identification of Air and Surface Vessels - The WEFT System of Aircraft Identification - Special Characteristics
MN-83a-BG	Celestial Navigation - The Earth
MN-83b-BG	Celestial Navigation - Charts
MN-73-J	Flashing Light Signals
MN-142-J	Drilling in Metal, Wood or Plastics
MN-83c-BG	Nautical Astronomy
MN-201a-P	Close Order Drill

OFFICE OF CIVILIAN DEFENSE

AN AIR RAID WARDEN'S REPORT (1 reel, 10 minutes) 16mm, sound (1942)
A training film emphasizing the importance of and careful attention to the detailed report as the air raid warden's first job during an instance.

THE AIR RAID WARDEN (2 reels, 20 minutes) 16 and 35mm, sound (1942)
Dramatizes the duties of an air raid warden and shows how he carries on during a raid.

THE CONTROL CENTER (4 reels, 40 minutes) 16mm, sound (1942)
A detailed exposition of the operation of a control center, showing the functions of each of the important workers at the center and how those functions are integrated.

THE RESCUE UNIT (2 reels, 15 minutes) 16mm, sound (1942)
A training film showing the way a rescue unit properly plans and carries on its work.

These films may be obtained from the following Civilian Defense Regional Offices:

	States Included
Region I Mr. Joseph M. Loughlin, Dir. First Civilian Defense Region 17 Court Street Boston, Massachusetts	Maine New Hampshire Vermont Rhode Island Massachusetts Connecticut
Region II Mr. George S. Van Schaick, Dir. Second Civilian Defense Region Chanin Building, Room 807 122 East 42nd Street New York, New York	Delaware New York State New York City New Jersey
Region III Mr. Rowland K. Adams, Dir. Third Civilian Defense Region 1554 Baltimore Trust Building Baltimore, Maryland	District of Columbia Maryland Pennsylvania Virginia
Region IV Mr. Charles H. Murchison, Dir. Fourth Civilian Defense Region Candler Building Atlanta, Georgia	Alabama Florida Georgia Mississippi North Carolina South Carolina Tennessee
Region V Mr. Dan T. Moore, Dir. Fifth Civilian Defense Region 1530 Standard Building Cleveland, Ohio	Indiana Kentucky Ohio West Virginia
Region VI Colonel B. B. Freud, Acting Dir. Sixth Civilian Defense Region Room 1429 222 West Adams Street Chicago, Illinois	Chicago Illinois Michigan Wisconsin
Region VII Mr. Joseph D. Scholtz, Dir. Seventh Civilian Defense Region 808 City National Bank Building Omaha, Nebraska	Colorado Iowa Kansas Minnesota Missouri Nebraska North Dakota South Dakota Wyoming
Region VIII Mr. R. E. Smith, Dir. Eighth Civilian Defense Region Majestic Building San Antonio, Texas	Arkansas Louisiana New Mexico Oklahoma Texas
Region IX Mr. James C. Sheppard, Dir. Ninth Civilian Defense Region 1355 Market Street San Francisco, California	Arizona California Idaho Montana Nevada Oregon Utah Washington

FEDERAL SECURITY AGENCY

Office of Education

The following 16mm sound training motion pictures were developed by the Office of Education. They are distributed on a sales basis by Castle Films, Inc., Rockefeller Plaza, New York, New York (also Chicago, Illinois, and San Francisco, California). Film libraries are encouraged to purchase prints so that they may be made available on a rental basis to interested groups.

Precision Measurement

1. The Steel Rule
2. The Micrometer
3. Fixed Gages
4. Vernier Scale
5. Height Gages and Test Indicators

The Engine Lathe

6. Rough Turning Between Centers
7. Turning Work of Two Diameters
8. Cutting a Taper with Compound Rest and Taper Attachment
9. Drilling, Boring and Reaming Work Held in Chuck
10. Cutting an External National Fine Thread
44. Turning a Taper with Tailstock Set Over
45. Cutting an External Acme Thread

The Milling Machine

11. The Milling Machine
12. Cutting Keyways
13. Straddle and Surface Milling to Close Tolerances
14. Straddle Milling
15. Plain Indexing and Cutting a Spur Gear

Vertical Boring Mill

16. Rough Facing, Turning and Drilling on a Vertical Turret Lathe
17. Rough Facing Boring and Turning a Shoulder
18. Facing, Turning, Boring, Grooving, Chamfering on a Vertical Turret Lathe Using Two Heads

The Shaper

19. Cutting a Keyway on End of a Finished Shaft
20. Machining a Cast Iron Rectangular Block
21. Machining a Tool Steel V Block

The Radial Drill

22. Drilling and Tapping Cast Steel
23. Drilling to a Layout and Spotfacing Cast Iron

Shipbuilding Skills

24. Preparing and Setting a Keel Block and Bottom Cradle
25. Innerbottom Sections:
    - Sub Assembly of a Closed Floor
    - Sub Assembly of an Open Floor
26. The Innerbottom:
    - Setting up Floors and Longitudinals
27. Side Frames: Sub Assembly of a Web Frame
28. Deck Girders: Sub Assembly
29. The Deck: Setting a Web Frame and a Transverse Beam
30. The Bulkhead: Laying Off the Boundary Stiffeners, Water Lines, and Buttock Lines
31. Bulkhead: Laying Off and Fitting a Centerline Stiffener
32. The Bulkhead: Setting a Transverse Watertight Bulkhead Into the Hull
33. Deck Plates: Regulating and Setting

Bench Work

34. Cutting Threads With Taps and Dies
35. Scraping Flat Surfaces
36. Fitting and Scraping Small Bearings
37. Reaming With Straight Hand Reamers
38. Reaming With Taper Hand Reamers
39. Laying Out Small Castings
40. Centering Small Stock
41. Fundamentals of Filing

Single Point Cutting Tools

42. Fundamentals of Side Cutting Tools
43. Fundamentals of End Cutting Tools

The Sensitive Drill

46. Drilling a Hole in a Pin

The Vertical Drill

47. Locating Holes, Drilling and Tapping in Cast Iron
48. Countersinking, Counterboring and Spot Facing

U. S. DEPARTMENT OF AGRICULTURE

For the following films, write to the depository in your state listed below, or to the U. S. Department of Agriculture, Division of Motion Pictures, Washington, D. C. Department employees and State extension workers may obtain prints on deposit with the depositories free of service charge for use in their work. Most of these organizations find it necessary to charge other borrowers a nominal service fee.

DEMOCRACY IN ACTION (1 reel, 11 minutes) 16 and 35mm, sound (1942)
Shows the vast agricultural resources of this country; the democratic procedures followed by farmers in carrying out the AAA farm program; how these procedures are helping farmers to produce more of the foods needed in the war program.

FARM FRONT (1 reel, 11 minutes) 16 and 35mm, sound (1941)
A documentary picture telling the story of the American farmer in national defense. It points out the relation of his work to the American ideal of the United States as a land of opportunity for all, and shows how he is working with industry to safeguard the American Freedoms.

FOR HEALTH AND HAPPINESS (1 reel, 9 minutes) 16mm, silent and sound, color (1941)
Discusses the vital bearing good nutrition has on human health and happiness. Shows scenes of well-nourished children from infancy to youth, and the food groups that contribute to all-around development.

ON THE ROAD TO TOMORROW (1 reel, 10 minutes) 16 and 35mm, sound (1941)
Shows the youth of many lands and different races engaged in youth activities; explains our own youth movement in the 4-H Clubs, representing the great basic industry of agriculture, its spread into many foreign lands, and the results and significance of work and training of 4-H Club members.

THE TREE IN A TEST TUBE (1 reel, 10 minutes) 16mm, sound, color (1942)
Stan Laurel and Oliver Hardy show the many things the average man uses which are made of wood. The Forest Products Laboratory at Madison, Wisconsin, has been developing new and better uses for wood, thereby releasing metals, etc. for war needs. Shows some of the tests to which these products are subjected before they are offered for public or military war use.

WOOD FOR WAR (½ reel, 5 minutes) 16mm, sound, color (1942)
Shows many of the new uses of wood in war manufacturing and construction for civilian and military purposes. Stresses the especial need for forest-fire prevention in wartime to save manpower and timber.

DEPOSITORIES

Alabama. Extension Service, Alabama Polytechnic Institute, Auburn.

Alaska. Extension Service, University of Alaska, College.

Arizona. Extension Division, University of Arizona, Tucson.

California. Extension Division, University of California, Berkeley (serves northern California); Extension Division, University of California, 815 South Hill Street, Los Angeles (serves southern California).

Connecticut. Audio-Visual Aids Center, University of Connecticut, Storrs.

Colorado. Bureau of Visual Instruction, University of Colorado, Boulder.

Delaware. N. J. State Museum, State House Annex, Trenton, N. J.

Florida. Department of Visual Instruction, General Extension Div., University of Florida, Gainesville.

Georgia. Division of General Extension, University System of Georgia, 223 Walton St., N.W., Atlanta; also Extension Service, College of Agriculture, Athens.

Idaho. Extension Service, College of Agriculture, University of Idaho, Boise.

Illinois. Visual Aids Service, University of Illinois, Urbana.

Indiana. Bureau of Visual Instruction, Extension Division, Indiana University, Bloomington.

Iowa. Visual Instruction Service, Iowa State College, Ames.

Kansas. Bureau of Visual Instruction, University Extension Division, University of Kansas, Lawrence.

Kentucky. Department of Visual Aids, University of Kentucky, Lexington.

Louisiana. Extension Service, La. State University, Baton Rouge.

Maryland. Extension Service, University of Maryland, College Park.

Massachusetts. Extension Service, College of Agriculture, Amherst.

Michigan. Extension Service, University of Michigan, Ann Arbor; also State Extension Service, Mich. State College, East Lansing.

Missouri. University Extension, University of Missouri, Columbia.

Montana. Extension Service, Montana A. & M. College, Bozeman.

U. S. DEPARTMENT OF AGRICULTURE (Continued)

Nebraska. University Extension Division, University of Nebraska, Lincoln.

Nevada. Extension Division, University of Nevada, Reno.

New Hampshire. Extension Service, University of New Hampshire, Durham.

New Jersey. New Jersey State Museum, State House Annex, Trenton.

New Mexico. Museum of New Mexico, Santa Fe, New Mexico.

New York. Extension Service, College of Agriculture, Ithaca.

North Carolina. Bureau of Visual Instruction, University of North Carolina, Chapel Hill.

North Dakota. Department of Information, N. D. Agricultural College, Fargo.

Oregon. Department of Visual Instruction, Oregon Agricultural College, Corvallis.

Oklahoma. Extension Service, A. & M. College, Stillwater.

Pennsylvania. PWC Film Service, Pennsylvania College for Women, Pittsburgh.

Puerto Rico. Extension Service, University of Puerto Rico, Rio Piedras.

Rhode Island. Extension Service, R. I. State College, Kingston.

South Carolina. Extension Division, University of South Carolina, Columbia.

South Dakota. Extension Division, University of South Dakota, Vermillion; also Extension Service, S. D. State College of Agriculture, Brookings.

Tennessee. Division of University Extension, University of Tennessee, Knoxville.

Texas. Visual Instruction Bureau, University of Texas, Austin; also Extension Service, A. & M. College of Texas, College Station.

Utah. Extension Division, State College of Agriculture, Logan.

Vermont. Robert Hull Fleming Museum, University of Vermont, Burlington.

Virginia. Audio-Visual Education, State Board of Education, Richmond.

Washington. Extension Service, State College of Washington, Pullman.

West Virginia. The Library, University of West Virginia, Morgantown.

Wisconsin. Bureau of Visual Instruction, University of Wisconsin, Madison.

Wyoming. Cooperative Film Library, University of Wyoming, Laramie.

OFFICE OF THE BITUMINOUS COAL CONSUMERS' COUNSEL

For the following film write to the Office of the Bituminous Coal Consumers' Counsel, Post Office Box 483, Washington, D. C.

COAL FOR VICTORY (1/2 reel, 5 minutes) 16 and 35mm, sound (1942) (Free)
Necessity and directions for conserving coal for war production.

OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS

The following films are being distributed in the United States as that portion of the Coordinator's program which attempts to improve understanding and good will between people of the Americas by showing audiences in the United States various aspects of their Good Neighbors to the South. Films are obtainable from the depositories listed below and from those on pages 25-31 marked #. These distributors are permitted to make a service charge to the user not to exceed 50¢ for the first subject and 25¢ for each additional subject included in a single shipment.

A LINE FROM YUCATAN (1 reel) 16mm, sound
Planters on Mexico's famed peninsula meet the opportunity to provide sisal hemp when war closes sources in the Pacific.

AMERICANS ALL (2 reels) 16mm, sound
Story of the young people who live and work and play between the Straits of Magellan and the Rio Grande River. Intended to give the people of the United States a better understanding of their little-known fellow Americans to the South. Produced and narrated by Julien Bryan.

ARGENTINE PRIMER (2 reels) 16mm, sound
Introductory study of Argentina, with emphasis on educational and economic trends.

ARGENTINE SOIL (2 reels) 16mm, sound
Impressive evidence of the richness of Argentine natural resources. After the unusual panorama of Buenos Aires we pass to the open spaces where we see vast herds of wild horses, sheep and cattle; then inspect magnificent cataracts and rivers, the cultivation of mate, tobacco, cotton and fruit. Last we see an agricultural fair with prize bulls on parade.

BRAZIL (1 reel) 16mm, sound
A picture of three great cities--Rio de Janeiro, Santos, and Sao Paulo--and of the Amazon River Valley.

OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS (Continued)

BRAZIL GETS THE NEWS (1 reel) 16mm, sound
The activities of the editorial and technical departments of a great modern newspaper in Sao Paulo.

BUENOS AIRES AND MONTEVIDEO (1 reel) 16mm, sound
Many aspects of life in the Argentine capital and glimpses of Uruguay's chief city and its gay carnivals.

COLOMBIA (1 reel) 16mm, sound
The old port of Barranquilla and the fine old towns of Bogota and Cartagena, and Colombia's charming countryside.

COLOMBIA, CROSSROADS OF THE AMERICAS (2½ reels) 16mm, sound
An excellent informational picture of South America's northernmost country. Shows extensively the nation, from the lowlands, over the Andes to Bogota, with its natural resources and its people.

DOWN WHERE NORTH BEGINS (2 reels) 16mm, sound, color
Most effective features of landscapes, buildings, and life in Ecuador.

FIESTA OF THE HILLS (1 reel) 16mm, sound
A Mexican fiesta picture, produced by Ralph Gray.

FIRE AND WATER (1 reel) 16mm, sound
The Lenten Fiesta at Taxco, where dancers of the True Cross perform to the noise of exploding firecrackers. Also, Almalaya del Rio, where Apache dances accompany the blessing of the headwaters of the River Lerma.

HIGH SPOTS OF A HIGH COUNTRY (2 reels) 16mm, sound,
The people of Guatemala and their volcanic country, with its romantic old cities, its markets and farms.

INTRODUCTION TO HAITI (1 reel) 16mm, sound, color
A visit to Port au Prince and the city of Cap Haitian including a trip to the ruins of the remarkable buildings erected by Henri Christophe, self-styled king of Haiti.

JUNGLE QUEST FOR THE GREAT STONE HEADS (3 reels) 16mm, sound
Discovery of long buried heroic sculpture left by the Olmecs of the state of Vera Cruz.

MEXICAN MOODS (1 reel) 16mm, sound, color
Scenes of incidental occurrences in Mexico--silversmiths at work, a performance of a gay dance, a song sung by one of Mexico's foremost stars, and a colorful pageant on the history of the country.

MEXICO BUILDS A DEMOCRACY (2 reels) 16mm, sound
Work of the Mexican Government in bringing education to its Tarascan people.

ORCHIDS (1 reel) 16mm, sound, color
The story, magnificently illustrated in color, of orchids and other tropical flora in South America.

OUR NEIGHBORS DOWN THE ROAD (4 reels) 16mm, sound
An automobile tour, much of it on the Pan-American Highway, from Caracas to the Straits of Magellan.

PAN AMERICAN BAZAAR (1 reel) 16mm, sound, color
Motion Pictures of the Pan American Fair held at Macy's Department Store in New York City.

PATAGONIAN PLAYGROUND (1 reel) 16mm, sound
The scenic beauty and summertime fund of Argentina's Nahuel Huapi Park, on the eastern slope of the Andes.

PEOPLE OF TWO WORLDS (1 reel) 16mm, sound, color
A brief study of Yucatan, ancient and modern, with emphasis on the Mayan Indians, their old civilization and as they are now.

SKY DANCERS OF PAPANTLA (1 reel) 16mm, sound
Mexico's unique Corpus Christi festival, which culminates in the headlong descent of dancers from a pole.

SUNDAYS IN THE VALLEY OF MEXICO (1 reel) 16mm, sound
Things to do and see on Sundays near Mexico City--from viewing pyramids to modern dancing.

THE BOUNTEOUS EARTH (1 reel) 16mm, sound
Dances accompanying the blessing of the animals on Candlemas Day in the City of Cholula (City of Churches). The violent rites at Tlocotalapan, where a young bull is set at large to be baited by the entire community.

THE DAY IS NEW (1 reel) 16mm, sound
A day in the life of the Mexican people, picturing their varied daily activities, from dawn to night.

THE HILL TOWNS OF GUATEMALA (1 reel) 16mm, sound
The fascinating life of several small towns perched on the slopes of an extinct volcanic mountain.

INFORMATIONAL (Continued)

OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS (Continued)

THIS IS ECUADOR (2 reels) 16mm, sound
Aspects of economic and social life of the country, and its strategic position in connection with the Panama Canal Zone.

TREASURE TROVE OF JADE (4 reels) 16mm, sound
Further discoveries, including the largest collection of early American jade ever found.

VENEZUELA (1 reel) 16 mm, sound
The capital city of Caracas and the port of La Guaira, sugar plantations, and colonial forst and trails.

WOODEN FACES OF TOTONICAPAN (1 reel) 16mm, sound
Guatemalan fiestas, including the breath-taking climax of Chichicastenango's famous eight-day celebration.

The following depositories distribute the films listed above. For other distributors, see those marked # on pages 25-31.

Westcott, Slade & Balcom Co.
95-99 Empire Street, Providence, R. I.

Visual Education Service
44 South State Street
Salt Lake City, Utah

National School Supply Co., Inc.
515 West Broad Street, Richmond, Va.

New Jersey State Museum
Trenton, New Jersey

Ohio State Department of Education
Columbus, Ohio

FEDERAL SECURITY AGENCY

National Youth Administration

The following films may be obtained from the Regional Youth Administrators of the National Youth Administration listed below. They are free of charge.

TRAINING WOMEN FOR WAR PRODUCTION (1 reel, 10 minutes) 16mm, sound, color (1942)
Illustrates how the National Youth Administration's production training program is preparing thousands of women for war industries in such occupations as machine tool operation, mechanical inspection, assembly work, radio, as well as in health and hospital work.

WORK CENTERS FOR VICTORY (1 reel, 12 minutes) 16mm, sound, color (1941)
Shows the many work experience opportunities afforded boys and girls, white and negro, by the National Youth Administration. Shows scenes of "experience on the job" which enables thousands of youth to obtain work in private industry.

YOUTH, JOBS AND DEFENSE (1 reel, 12 minutes) 16mm, sound, color (1941)
Depicts briefly how the NYA is providing young people with practical experience and training for jobs in war industries--some of the 400,000 NYA youth who have gone into private employment in the last 12 months are shown at work in a large aircraft plant. Melvyn Douglas provides the commentary.

The following film was produced by the Illinois National Youth Administration, and may be borrowed by writing to the Regional Youth Administrator, Civic Opera Building, 20 North Wacker Drive, Chicago, Illinois.

YOUTH ON THE INDUSTRIAL FRONT (2½ reels, 25 minutes) 16mm, sound (1941)
Shows boys in training in radio, machine shops, and automotive experience. Also boys actually on the job in the production of war materials.

Regional NYA Office	Region
Leon J. Kowal, Adm. 10 Post Office Square Boston, Massachusetts	Maine, New Hampshire, Vermont, New York State, New York City, Rhode Island, Massachusetts, Connecticut
John N. Patterson, Adm. Perry Bldg. 16th and Chestnut Streets Philadelphia, Pennsylvania	New Jersey, Delaware, Pennsylvania
Glenn S. Callaghan, Adm. Atlas Building, Quarrier St. Charleston, West Virginia	District of Columbia, North Carolina, West Virginia, Virginia, Maryland
Orin W. Kaye, Adm. 4300 Euclid Ave. Cleveland, Ohio	Kentucky, Michigan, Ohio
Miss Mary S. Anderson Civic Opera Building 20 North Wacker Drive Chicago, Illinois	Indiana, Wisconsin, Illinois

National Youth Administration (Continued)

Boisfeuillet Jones, Adm. 10 Forsyth Street Bldg. Atlanta, Georgia	Georgia, Alabama, Florida, South Carolina, Tennessee, Mississippi
Chester B. Lund, Adm. 44 East 6th Street St. Paul, Minnesota	Minnesota, North Dakota, South Dakota, Nebraska, Iowa
Miss Anne Laughlin, Adm. Dierks Building 10th St. and Grand Ave. Kansas City, Missouri	Missouri, Oklahoma, Arkansas Kansas
J. C. Kellam, Adm. 714 Brown Building Austin, Texas	Louisiana, New Mexico, Texas
William W. Gartin, Adm. 810 - 14th Street Denver, Colorado	Montana, Idaho, Utah, Wyoming, Colorado
W. G. Frischknecht, Adm. 833 Montgomery Street San Francisco, California	California, Washington, Oregon, Nevada, Arizona

U. S. Public Health Service

For the following film write to the Surgeon General, U. S. Public Health Service, Washington, D. C.

ABOUT FACES (1 reel, 20 minutes) 16mm, sound, color; (1 reel, 15 minutes) 16 and 35mm, sound, black-and-white (1941) (Free)
Entertaining subject on dental health. Follows "Danny" from the cradle to his induction in the Army, stressing importance of dental care.

Prints of the following film have been made available to all State Health Offices from which they may be borrowed. It will be shown exclusively under the supervision and authority of local health departments.

KNOW FOR SURE (Venereal Disease) (1 reel, 20 minutes) 16 and 35mm, sound (1942) (Free)
A very frank treatment, FOR MALE AUDIENCES ONLY, particularly for men in camps and war industries. Deals with prophylaxis, diagnosis, and clinical treatment. Also gives attention to follow-up treatment, sources of infection, and community control. Made in Hollywood, produced by Darryl Zanuck, directed by Lewis Milestone, for the Public Health Service.

DEPARTMENT OF THE INTERIOR

Bureau of Mines

The Bureau of Mines has many films, both sound and silent, in both 16 and 35mm widths, depicting mining operations and related manufacturing processes. They show where minerals are found and how they are extracted from the earth, manufactured or refined into useful everyday products, utilized, and conserved. The films deal with such minerals and mineral products as aluminum, asbestos, abrasives, acetylene, coal, concrete, copper, glass, iron, steel, lead, gasoline, petroleum, nickel, sulphur, and related subjects. Many of these films are made specifically for training purposes associated with training activities of the war agencies. They are available to Governmental agencies, educational institutions, engineering and scientific societies, civic and business associations, clubs, churches, and other responsible organizations.

These films are produced and circulated under the direction of Allan Sherman, Chief, Information Division, Bureau of Mines, Washington, D. C. The cost of production is paid by cooperating industrial concerns. The pictures are free of trademarks, trade names, or other direct advertising material. Production is in charge of M. F. Leopold, Supervising Engineer, Motion Picture Production Section, Bureau of Mines, Washington, D. C. Address inquiries concerning production and revision to him.

Distribution of the films is in charge of:
Louis F. Perry, Supervising Engineer
Graphic Services Section
Bureau of Mines Experiment Station
4800 Forbes Street
Pittsburgh, Pennsylvania

A complete library of all pictures is maintained at the above address. For the convenience of borrowers distant from Pittsburgh, copies of certain films are deposited at sub-distributing centers, selected with regard to accessibility.

INFORMATIONAL (Continued)

OFFICE OF WAR INFORMATION

Bureau of Motion Pictures

OBTAIN FILMS FROM YOUR NEAREST DISTRIBUTOR

These Government 16mm sound films are available from the distributors listed below. These distributors are permitted to make a service charge to the user not to exceed 50¢ for the first subject and 25¢ for each additional subject included in a single shipment. (An exception is TARGET FOR TONIGHT, for which a service charge not to exceed $2.50 is permitted.) Transportation costs are additional.

With each film shipment is enclosed an attendance report card, stamped with the distributor's name, which should be filled out and returned promptly to the Bureau of Motion Pictures. No postage is necessary.

Persons interested in 35mm sound prints should write directly to the Office of War Information Film Unit, 35 West 45th Street, New York City.

*ALUMINUM (1 reel, 9 minutes) 16 and 35mm, sound (1941)
The story of the "fateful metal"; importation of bauxite; transmutation into alumina and thence into aluminum sheeting and subsequently into fighting planes. This behind-the-scenes story of our most strategic metal is told in striking photography and eloquent commentary. Photographed on the Gulf Coast and at leading reduction and sheet-rolling plants, chiefly in the South.

THE ARM BEHIND THE ARMY (1 reel, 10 minutes) 16mm, sound (1942)
This is an official War Department film made so that men in plants turning out war materials might better understand their importance in the war. It shows that the success of the Army on the firing line depends upon the success of our labor and industry on the production line, "the arm behind the American Army."

BOMBER (1 reel, 10 minutes) 16 and 35mm, sound (1941)
The manufacture of the B-26 Army bomber and suggests its speed and power as a combat plane. "As a production it ranks with the finest documentary films ever made. The camera work is excellent, with each frame a perfect photograph. A special commentary, written by Carl Sandburg, stresses power and certainty in its poetic composition."--the Hollywood Reporter.

*BUILDING A BOMBER (2 reels, 20 minutes) 16 and 35mm, sound (1941)
An educational exposition on the building of the B-26 Army bomber, and is of considerable interest to engineering schools, vocational groups, and educational organizations eager to learn how our skyfighters are made.

*BUILDING A TANK (2 reels, 20 minutes) 16 and 35mm, sound (1942)
The speed-up of the tank production program, including technical details regarding construction and processes involved in the manufacture of the M-3 medium tank.

DEMOCRACY IN ACTION (1 reel, 11 minutes) 16 and 35mm, sound (1942)
The vast agricultural resources of this country; the democratic procedures followed by farmers in carrying out the AAA farm program; how these procedures are helping farmers to produce more of the foods needed in the war program.

HOME ON THE RANGE (1 reel, 11 minutes) 16 and 35mm, sound (1942)
Produced by the Agricultural Adjustment Administration, U. S. Department of Agriculture, this film is an eloquent tribute to the men of the western ranges. It shows the contribution of the western range country to the war effort--wool and mutton, beef and leather. Gives brief scenes of dams, watering tanks, windmills, crested wheat grass, deferred grazing and a round-up.

LAKE CARRIER (1 reel, 9 minutes) 16 and 35mm, sound (1942)
The part played by lake freighters on the inland waterways carrying iron ore 1,000 miles to the steel mills of midwest industrial cities. Narration by Frederic March.

LISTEN TO BRITAIN (2 reels, 20 minutes) 16mm, sound (1942)
This film, produced for the British Ministry of Information, is a remarkable factual record of the many sounds and sights of wartime Britain--from the roar of Spitfires to the shouts of children. There is no dialogue; the audience literally listens to Britain. Here are the English people--soldiers, mechanics, nurses, farmers, children--whom we can be proud to call our Allies. It will give Americans a new respect for Britain's fight against the Nazis, a deeper appreciation of the men and women who are carrying on that fight.

MANPOWER (1 reel, 8½ minutes) 16mm, sound (1942)
To fight this war, ten million people must go to work by the end of 1943. Today the problem of manpower is crucial in our factories and on our farms. This film presents the problems and confusions now existing. Paul V. McNutt, Chairman of the War Manpower Commission, introduces the problem and suggests voluntary steps to be followed by employers and workers, cooperating with Government agencies, in attacking the problem. "Interesting and timely."--Showmen's Trade Review. "Factual, interesting and concise."--Motion Picture Daily.

MEN AND THE SEA (1 reel, 10 minutes) 16 and 35mm, sound (1942)
Presented by the United States Maritime Commission, and dedicated to American Merchant Seamen, this picture shows the training of the men who man the cargo ships. Their job is vitally important in the winning of the war; they must get the guns and the food to where they are needed.

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*Not available from all distributors. Those distributors with prints are so designated on pages 16-20.

BUREAU OF MOTION PICTURES (Continued)

RING OF STEEL (1 reel, 10 minutes) 16 and 35mm, sound (1942)
This dramatic subject pictures the American soldiers as they are now, carrying on the traditions of past accomplishment, and outlines the part of the American soldier in the growth of the nation. Narration by Spencer Tracy. Many scenes of battle-grounds famous in American history.

SAFEGUARDING MILITARY INFORMATION (1 reel, 10 minutes) 16 and 35mm, sound (1942)
Originally made by the Motion Picture Academy of Arts and Sciences as a training film for the U. S. Army, this film is now being shown generally throughout the country. It stresses the importance of secrecy on the part of military personnel and workers engaged in defense activities, and shows the results of careless talk, dramatic scenes of ship explosion, sabotage, and disastrous events resulting from thoughtless revelation of information to the enemy.

SALVAGE (1 reel, 7 minutes) 16 and 35mm, sound (1942)
Donald Nelson, head of the War Production Board, discusses seriously and impressively the need for every American man, woman, and child saving and salvaging metals, fats, and rubber. For tanks, planes, and guns we need steel, copper, brass, tin, aluminum and rubber. We need the old lawnmowers, plows, pots and pans, and the scrap metal in every home, on every farm. For shells and explosives we need nitroglycerine, and for nitroglycerine we need fats and greases. The job of salvage is not a one-time job, but one to be done once a week every week. American men and women can help win this war by salvage. "The neatest short to come from the Office of War Information ....Nicely photographed, cut and backgrounded, it boasts an amazingly fine spoken narrative by Donald Nelson."--Variety.

SONG SHORTS (1/3 reel, 3 minutes, each) 16 and 35mm, sound (1942)
ANCHORS AWEIGH - Splendid background scenes of the Navy at sea stir the audience while Conrad Thibault sings the Navy song in a rousing manner. The audience joins in the last chorus.
KEEP 'EM ROLLING - A rousing, patriotic subject, with production scenes as a kaleidoscopic background for the song. The Rodgers and Hart song is sung by Jan Peerce "off screen" and the audience is asked to join in the last chorus, with guiding words superimposed upon the film scenes of industry in action to "keep 'em rolling."
THE CAISSONS GO ROLLING ALONG - Robert Weede sings this well-known song of the Field Artillery, "off screen." Scenes of the Field Artillery in action make a stirring background. The audience is asked to join in the chorus.

TANKS (1 reel, 10 minutes) 16 and 35mm, sound (1942)
Graphically describes the manufacture of the M-3 medium tank. Photographed in Detroit, Fort Knox, Kentucky, and an unnamed Eastern seaport. "The photography is magnificent, the musical score by Jack Schaindlin forms a meaningful background to the film; and Orson Welles reads a fine script with dramatic excellence. In telling the tale of how the M-3 medium tank is assembled, tested and shipped overseas, all the component factors are fused into an outstanding reel. Exhibitors will find the subject an exciting way of showing how our production plants are forging the 'armament of victory.'"--Film Daily.

◊TARGET FOR TONIGHT (5 reels, 48 minutes) 16mm, sound
An account of an actual air raid by the Bomber Command of the Royal British Air Force. The picture begins with new aerial photographs of enemy territory brought back by reconnaissance planes. These disclose the objective to be raided. Then comes the staff planning, routine of preparing the bombers, getting weather reports, instructing the crews, and the tension of the evening take-off. From this point, the camera stays with the big Wellington bomber, named "F for Freddie," and its crew of six. "F for Freddie" reaches its destination, descends to bomb the target amidst a barrage of enemy anti-aircraft fire, and there is a spectacular explosion as the bombs find their mark. Its engine in trouble, the wireless operator wounded, the plane heads for home. The picture ends with the crew's report back to headquarters. (The maximum service charge permitted for this film is $2.50.)

U. S. NEWS REVIEW: ISSUE NO. 1 (1 reel, 21 minutes) 16mm, sound (1942)
The first of a series of monthly news reviews, this issue covers seven subjects: Women at War, War Rules for Fuel Saving, New Flag Made for the President, Malta Fights On, Keep the Coal Coming, War in the Pacific, Wartime Harvest.

WESTERN FRONT (2 reels, 21 minutes) 16mm, sound (1942)
Released originally by United China Relief, Inc., in connection with their 1942 campaign for funds for China, this is a picture of China's plight and heroic fight. It emphasizes with the drama of reality the role that China continues to play as one of the United Nations. The ruthless brutality of Japan's destruction in China is shown. Against great obstacles China continues her fight and the people of the United States realize the importance of holding China as a fighting ally. The picture stresses the desperate needs of the Chinese people, although it makes no direct appeal for contributions.

WINNING YOUR WINGS (2 reels, 18 minutes) 16mm, sound (1942)
Lieutenant James Stewart of the U. S. Army Air Corps speaks directly to the audience in giving a birds-eye view of how the United States Army Air Force is being built into the strongest and best trained in the world. This picture was produced by Warner Brothers for the United States Army Air Forces, and stars Lieutenant James Stewart, who explains the work of the air force, the requirements for enlistment, and the benefits to be derived from the program. "It is probably the most inspiring film of its sort yet released."--Chicago News.

◊ Not available from all distributors. Those distributors with prints are so designated on pages 16-20.

BUREAU OF MOTION PICTURES (Continued)

✓ *WOMEN IN DEFENSE (1 reel, 10 minutes) 16 and 35mm, sound (1942)
A topical exposition of the various roles women are assuming in the war effort. Principal sequences show women of science, women in industry, and women in the voluntary services. Commentary written by Mrs. Franklin D. Roosevelt and narrated by Katharine Hepburn.

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*Not available from all distributors. Those distributors with prints are so designated on pages 25-81.

Distributors

Alabama

◊Wilfred Naylor
1907 Fifth Avenue, North
Birmingham, Alabama

#◊*University of Alabama
Visual Aids
Tuscaloosa, Alabama

Arizona

#◊*University of Arizona
Extension Division
Tucson, Arizona

Arkansas

#*Arkansas State Teachers College
Public Relations
Conway, Arkansas

California

#◊*University of California
Extension Division
Berkeley, California

◊*Bell and Howell Company
716 North LaBrea Avenue
Hollywood, California

◊William M. Dennis
2506½ W. Seventh Street
Los Angeles, California

◊*Films, Inc.,
1709 W. Eighth Street
Los Angeles, California

◊*Ideal Pictures Corporation
2408 W. Seventh Street
Los Angeles, California

University of California
813 South Hill Street
Los Angeles, California

◊Audiofilms Company
262 Scenic-Piedmont
Oakland, California

◊Photo and Sound, Inc.
153 Kearney Street
San Francisco, California

#◊*Y.M.C.A. Motion Picture Bureau
351 Turk Street
San Francisco, California

Colorado

#◊*University of Colorado
Extension Division
Boulder, Colorado

◊Akin and Bagshaw, Inc.
1425 Williams Street
Denver, Colorado

◊*Ideal Pictures Corporation
7 Coors Building
Littleton, Colorado

Connecticut

Hebert Studios, Inc.
53 Allyn Street
Hartford, Connecticut

#◊*University of Connecticut
Audio-Visual Aids Center
Storrs, Connecticut

Delaware

#Milton H. Hill, Inc.
922 Shipley Street
Wilmington, Delaware

Florida

#*University of Florida
Dept. Audio-Visual Inst.
Gainesville, Florida

#◊Southern 16mm Picture Co.
705 Exchange Building
Jacksonville, Florida

◊Southern 16mm Picture Co.
172 N. E. 96th Street
Miami, Florida

Georgia

#◊Distributors Group, Inc.
756 W. Peachtree, N. W.
Atlanta, Georgia

◊Reagan Visual Education Co.
Rhodes Building
Atlanta, Georgia

◊*Russell C. Roshon
Rhodes-Haverty Building
Atlanta, Georgia

◊*Stevens-Ideal Pictures
89 Cone Street, N.W.
Atlanta, Georgia

#◊*University System of Georgia
Division of General Extension
Atlanta, Georgia

Idaho

#◊*University of Idaho
Extension Service
Boise, Idaho

Illinois

#◊*Bell and Howell Co.
1801 Larchmont Ave.
Chicago, Illinois

College Film Center
59 East Van Buren Street
Chicago, Illinois

◊*Films, Inc.
64 East Lake Street
Chicago, Illinois

#◊*Ideal Pictures Corporation
28-34 East Eighth Street
Chicago, Illinois

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* Prints of ALUMINUM, BUILDING A BOMBER, BUILDING A TANK, and WOMEN IN DEFENSE available.

◊ Prints of TARGET FOR TONIGHT available.

# Distribute films of the Coordinator of Inter-American Affairs listed on pages 10-12.

Bureau of Motion Pictures (Continued)

Illinois (Continued)

◊*Russell C. Roshon
188 West Randolph Street
Chicago, Illinois

#◊*Y.M.C.A. Motion Picture Bureau
19 South LaSalle Street
Chicago, Illinois

#◊*University of Illinois
Visual Aid Service
Urbana, Illinois

Indiana

#◊*Indiana University
Extension Division
Bureau of Audio-Visual Aids
Bloomington, Indiana

Modern Talking Picture Service
615 North Illinois Street
Indianapolis, Indiana

◊Burke's Motion Picture Co.
428½ Lincoln Way West
South Bend, Indiana

#◊Dennis Film Bureau, Inc.
29 East Maple Street
Wabash, Indiana

Iowa

#◊*Iowa State College
Visual Instruction Service
Ames, Iowa

◊Pratt Sound Film Service
Cedar Rapids, Iowa

#◊*Eastin 16mm Picture Co.
Davenport, Iowa

#◊*State University of Iowa
Dept. of Visual Instruction
Iowa City, Iowa

Kansas

#◊*University of Kansas
Extension Division
Bureau of Visual Instruction
Lawrence, Kansas

Central Visual Education Service
Broadway Hotel Building
Wichita, Kansas

Kentucky

#◊D. T. Davis Co.
231 West Short Street
Lexington, Kentucky

#◊*University of Kentucky
University Extension
Lexington, Kentucky

Louisiana

Jasper Ewing and Sons
225 Main Street, P. O. Box 1028
Baton Rouge, Louisiana

#*State Department of Education
Baton Rouge, Louisiana

◊Harfilms, Inc.
600 Baronne Street
New Orleans, Louisiana

Maine

#*University of Maine
School of Education
Orono, Maine

Stanley Dana Corporation
Portland, Maine

Maryland

#◊Stark Films
Howard and Centre Streets
Baltimore, Maryland

Massachusetts

◊*Boston University
School of Education
Boston, Massachusetts

◊Cinema, Inc.
234 Clarendon Street
Boston, Massachusetts

#*Commonwealth of Massachusetts
Department of Education
Boston, Massachusetts

J. H. Dunlop Company
172 Newberry Street
Boston, Massachusetts

#◊Visual Education Service, Inc.
131 Clarendon Street
Boston, Massachusetts

Michigan

#◊*University of Michigan
Bureau of Visual Education
Ann Arbor, Michigan

◊Cosmopolitan Film Libraries, Inc.
3248 Gratiot Avenue
Detroit, Michigan

◊W. D. Engleman Company
701 West Warren Street

Minnesota

◊Elliott Film Company
72 Glenwood Avenue
Minneapolis, Minnesota

#◊Film Preview, Inc.
1504 Hennepin Avenue
Minneapolis, Minnesota

◊*Russell C. Roshon
535 Andrus Building
Minneapolis, Minnesota

#◊*University of Minnesota
Extension Division
Minneapolis, Minnesota

Mississippi

State Board of Education
Jackson, Missippi

Missouri

#*University of Missouri
University Extension Division
Columbia, Missouri

#◊Kansas City Sound Service Co.
926 McGee Street
Kansas City, Missouri

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* Prints of ALUMINUM, BUILDING A BOMBER, BUILDING A TANK, and WOMEN IN DEFENSE available.

◊ Prints of TARGET FOR TONIGHT available.

# Distribute films of the Coordinator of Inter-American Affairs listed on pages

Bureau of Motion Pictures (Continued)

Missouri (Continued)

◊*Russell C. Roshon
Midland Building
Kansas City, Missouri

◊Pictosound Movie Service
4416 Donovan Avenue
St. Louis, Missouri

◊*Russell C. Roshon
Louderman Building
St. Louis, Missouri

◊Swank Motion Pictures
620 North Skinker Avenue
St. Louis, Missouri

Montana

#*State Department of Visual Education
Helena, Montana

#Campbell Films
Manhattan, Montana

Nebraska

#◊*University of Nebraska
Extension Division
Department of Audio-Visual Aids

Majestic Pictures
1611 Davenport Street
Omaha, Nebraska

◊Modern Sound Pictures, Inc.
1219 Farnum Street
Omaha, Nebraska

New Hampshire

#◊*University of New Hampshire
Extension Service
Durham, New Hampshire

A. H. Rice and Company
P. O. Box 205
Hollis, New Hampshire

New Jersey

◊Audio-Film Libraries
656 Bloomfield Avenue
Bloomfield, New Jersey

#◊The Princeton Film Center
410 Nassau Street
Princeton, New Jersey

New Mexico

#*University of New Mexico
Extension Division
Albuquerque, New Mexico

New York

◊Buchan Pictures
79 Allen Street
Buffalo, New York

◊*Bell and Howell Co.
30 Rockefeller Plaza
New York, New York

◊*Bertram Willoughby Pictures, Inc.
Suite 600
1600 Broadway
New York, New York

◊Brandon Films, Inc.
1600 Broadway
New York, New York

New York (Continued)

Commonwealth Pictures Corp.
729 Seventh Avenue
New York, New York

#◊*Films, Inc.
330 West 42nd Street
New York, New York

#◊*Walter O. Gutlonn, Inc.
35 West 45th Street
New York, New York

Institutional Cinema Service Inc.
1560 Broadway
New York, New York

◊King Cole's Sound Service, Inc.
203 East 26th Street
New York, New York

Mogull's, Inc.
68 West 48th Street
New York, New York

#◊*New York University Film Library
71 Washington Square
New York, New York

◊*Russell C. Roshon
RKO Building - 25th Floor
Radio City
New York, New York

#◊*Y.M.C.A. Motion Picture Bureau
347 Madison Avenue
New York, New York

#◊John E. Allen, Inc.
6 George Street
Rochester, New York

#◊*Syracuse University
School of Education
Educational Film Library
Syracuse, New York

◊Ideal Motion Picture Service
393 St. John's Avenue
Yonkers, New York

North Carolina

#◊*University of North Carolina
Extension Division
Chapel Hill, North Carolina

◊National Film Service
14 Glenwood Avenue
Raleigh, North Carolina

North Dakota

#◊*State College Station
State Director of Correspondence Study
Fargo, North Dakota

Ohio

◊Ralph V. Haile and Associates
215 Walnut Street
Cincinnati, Ohio

Manse Film Library
1521 Dana Avenue
Cincinnati, Ohio

Cleveland Public Library
Cleveland, Ohio

Escar Motion Picture Service, Inc.
7315 Carnegie Avenue
Cleveland, Ohio

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* Prints of ALUMINUM, BUILDING A BOMBER, BUILDING A TANK, and WOMEN IN DEFENSE available.

◊ Prints of TARGET FOR TONIGHT available

Distribute films of the Coordinator of Inter-American Affairs listed on pages

Bureau of Motion Pictures (Continued)

Ohio (Continued)

§Sun Ray Films Co.
2108 Payne Avenue
Cleveland, Ohio

#§Twyman Films, Inc.
29 Central Avenue
Dayton, Ohio

#§Cousino Visual Education Service
2854 Scottwood Avenue
Toledo, Ohio

Oklahoma

#§*University of Oklahoma
Extension Division
Norman, Oklahoma

Camera Shoppe
2301 Classen Boulevard
Oklahoma City, Oklahoma

#§Oklahoma Visual Education Co.
1100 N.W. 22nd Street
Oklahoma City, Oklahoma

Oregon

§*Oregon State System of Higher Education
Department of Visual Instruction
Corvallis, Oregon

§*Films, Inc.
314 S. W. Ninth Avenue
Portland, Oregon

§*Ideal-Owens Pictures
Drawer H.
Portland, Oregon

Pennsylvania

Jordan Productions
1140 Liberty Street
Franklin, Pennsylvania

#§Kunz Motion Picture Service, Inc.
1319 Vine Street
Philadelphia, Pennsylvania

§*Russell C. Roshon
Fox Theatre Building
Philadelphia, Pennsylvania

#*Pennsylvania College for Women
P.C.W. Film Service
Pittsburgh, Pennsylvania

§*Russell C. Roshon
520 State Theatre Building
Pittsburgh, Pennsylvania

§Clem Williams Films
403 Diamond Bank Building
Pittsburgh, Pennsylvania

#§*Pennsylvania State College
Audio-Visual Aids
State College, Pennsylvania

South Carolina

#§*University of South Carolina
Extension Division
Columbia, South Carolina

South Dakota

#*University of South Dakota
Extension Division
Vermillion, South Dakota

Tennessee

#§*University of Tennessee
Extension Division
Knoxville, Tennessee

§*Ideal Pictures Corporation
18 South Third Street
Memphis, Tennessee

§*Russell C. Roshon
88 Madison Avenue at Maine
Memphis, Tennessee

Texas

#§Texas Visual Education Co.
305 West 10th Street
Austin, Texas

#§*University of Texas
Extension Division
Austin, Texas

#*West Texas State Teachers College
Bureau of Public Service
Canyon, Texas

§*National Ideal Film Library
2204 Main Street
Dallas, Texas

§*Russell C. Roshon
Southland Annex
Dallas, Texas

#§*Y.M.C.A. Motion Picture Bureau
1700 Patterson Avenue
Dallas, Texas

#§*Texas Technological College
Department of Visual Instruction
Lubbock, Texas

Utah

#*Brigham Young University
Extension Division
Provo, Utah

Vermont

#*Robert Hull Fleming Museum
University of Vermont
Burlington, Vermont

Virginia

National Film Service
515 West Broad Street
Richmond, Virginia

#*State Board of Education
Audio-Visual Education
Richmond, Virginia

Washington

#§*State College of Washington
Division of General Extension
Pullman, Washington

§Rarig Motion Picture Company
5514 University Way
Seattle, Washington

Washington, D. C.

§*Bell and Howell Company
1221 G Street, N.W.
Washington, D. C.

#§Paul L. Brand
816 Connecticut Avenue, N.W.
Washington, D. C.

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§ Prints of TARGET FOR TONIGHT available

Distribute films of the Coordinator of Inter-American Affairs listed on pages.

Bureau of Motion Pictures (Continued)

Wisconsin

∅*University of Wisconsin
Extension Division
Madison, Wisconsin

∅Photoart House
844 N. Plankinton Avenue
Milwaukee, Wisconsin

Wyoming

#*University of Wyoming
Director of Correspondence Study
Laramie, Wyoming

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* Prints of ALUMINUM, BUILDING A BOMBER, BUILDING A TANK, and WOMEN IN DEFENSE available.

∅ Prints of TARGET FOR TONIGHT available.

Distribute films of the Coordinator of Inter-American Affairs listed on pages.

EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE FOR EMERGENCY MANAGEMENT

WASHINGTON, D. C.

MOTION PICTURE PREVIEW

"WOMEN IN DEFENSE"

Produced by the Office for Emergency Management

Commentary Written by Eleanor Roosevelt

Commentary Spoken by Katharine Hepburn

You are cordially invited to attend a preview of the one-reel motion picture, WOMEN IN DEFENSE, which will be held at the National Archives auditorium, Pennsylvania Avenue at Ninth Street (fifth floor), Thursday, December 11, at 1 o'clock.

This film is one of a series of short subjects dealing with the national emergency produced by the Office for Emergency Management Film Unit. WOMEN IN DEFENSE includes pictorialization of women's activities in science, industry, and the voluntary services.

The film runs ten minutes and will be released to theatres throughout the country under the auspices of the Motion Picture Committee Cooperating for National Defense.

The film will be shown at 15-minute intervals from 1 to 2 o'clock. For further information, please telephone EXecutive 3300, extension 30 (Executive Offices, extension 30).

15775 Roberta Cook -

WOMEN IN DEFENSE

— A Defense Report on Film —

Commentary Written by Mrs. Eleanor Roosevelt

Commentary Spoken by Miss Katherine Hepburn

Produced by the

OFFICE FOR EMERGENCY MANAGEMENT

Film Unit

* * * * * * * * * * * * * * * * *

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Synopsis of Film 3
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Production Notes 10
O.E.M. Film Notes. 11

BIOGRAPHICAL NOTES

Mrs. Eleanor Roosevelt

Mrs. Roosevelt, America's First Lady, has long been known for her interest in social welfare, youth, women's and related civic activities. Her daily column "MY DAY" appears in newspapers from coast to coast.

Recently Mrs. Roosevelt accepted the assistant directorship of the Office of Civilian Defense where she is in charge of enlisting the aid of voluntary groups throughout the country.

Miss Katherine Hepburn

Miss Hepburn, voice of WOMEN IN DEFENSE, has made an extraordinary record in ten years of film and stage activities. Three of the films she starred in were selected among their years' "ten best": RKO's BILL OF DIVORCEMENT (1932), LITTLE WOMEN (1934), and STAGE DOOR (1937).

Miss Hepburn won the Motion Picture Academy's annual award for the best feminine performance for her role in MORNING GLORY for the year 1932-33.

After a successful Broadway run in THE PHILADELPHIA STORY, Miss Hepburn enacted the Tracy Lord role on the screen and won the New York Film Critic's award for 1940.

Currently Miss Hepburn is appearing in MGM's WOMAN OF THE YEAR.

SYNOPSIS

WOMEN IN DEFENSE

WOMEN IN DEFENSE is a one-reel (10 minutes) "defense report on film" describing the growing defense activities of American women.

Titled against Bryant Baker's statuary group, The Pioneer Woman, the film recalls the similarity between the pioneer women of yesterday, who helped to build a nation, and the women of today who are working to save a way of life.

Unique among one-reel motion pictures in that its commentary was written and spoken by two of today's foremost women, Eleanor Roosevelt and Katherine Hepburn, the film is perhaps further distinguished by the number of heroines it boasts. Scores of women are shown in laboratories, in nutrition classes, in parachute and aeroplane factories, in ball-bearing assembly plants, on shell inspection lines, as Red Cross volunteers, and in classes conducted by the American Woman's Voluntary Services.

The film has three main sequences enveloping the roles in total defense of women in science, industry and the voluntary services.

Photographed at the Department of Agriculture's Beltsville Research Center, largest research institution in the world, the laboratory scenes depict scientists engaged in a variety of pursuits which will help to reduce the impact of the emergency upon the nation's homes, and in certain instances, are of specific importance to the military as well.

The industrial sequence shows women employed in a number of representative occupations working on products of utmost importance:

—women sewing strong cotton fabric for the control surfaces of fighter planes. Long, curved needles flash in and out as the fabric is made secure to a wing tip which must stand terrific pressure in combat;

—skilled operators turning out scores of perfect parachutes day after day;

— girls with dextrous fingers assembling the minute ball- and roller bearings which go into nearly every instrument of war;

SYNOPSIS (cont'd)

--girls assembling with unbelievable rapidity the electrical switches for every ship that slides down the ways;

--girls assembling two-way radios used by every branch of the armed forces;

--girls' hands fashioning the tiny, delicate autosyn motor, which installed in an aeroplane enables the pilot to check constantly the operation of his ship in flight.

The final sequence illustrates the work of the women in the voluntary services, as the commentary points out, "learning lessons indispensable in war, valuable in peace." Scenes include first-aid classes conducted by the American Woman's Voluntary Services, the familiar but all-important "bandage-rolling" carried on by the American Red Cross, and anonymous blood donors, "giving the essence of life to save life," who make possible medical science's newest weapon against death.

The film concludes with a stirring montage which brings to mind the tremendous influence of today's women and reaffirms the decisive role they have to play, for "they are determined that our democracy shall survive and that our precious freedoms shall be preserved."

****

COMMENTARY

WOMEN IN DEFENSE

"A Defense Report on Film"

Commentary written by Mrs. Eleanor Roosevelt
Commentary spoken by Miss Katherine Hepburn

FOREWORD: Yesterday the pioneer woman helped to win a continent. Today, with the same spirit of determination, American women are working to save this way of life - working to save the nation from the impact of total war, working to build a sure defense.

I. LABORATORY

American women are alert to the dangers which threaten our democracy today.

Women trained in science are testing and observing and working to discover new ways to meet this threat.

Other women, skilled and unskilled, are asking, "What can I do to help?"

This film will show what women are doing and what they can do.

Every woman has an important place in the national defense program, in science, in industry, and in the home.

II. CLOTH TESTING

Silk is vital to national defense. Its most important use is for parachutes and powder bags. New substitutes are being perfected in the laboratory, to meet the growing demand.

Normal wear is hard on clothes, but not so hard as a machine like this. And there is a direct relation between an abrasion tester, clothing, and national defense.

Durability and economy are important to American consumers called on to make sacrifices in this emergency.

III. NUTRITION

Defense is more than military equipment and armed forces.

Defense is keeping the nation strong and healthy. In this important work of defense, our scientists are experimenting with small animals to find out things about vitamins.

COMMENTARY (cont'd)

A complete report of their reactions and growth is recorded after they are given experimental food formulas during which they are carefully checked and weighed.

New and health-giving diets are being developed through this research.

IV. WOMAN OF SCIENCE

This woman is a modern pioneer - a scientist.

She symbolizes the tremendously important work of women

in chemistry
in bacteriology
in physics
in nutrition
in medicine
in hundreds of hospitals and laboratories throughout our country.

V. NUTRITION CLASS

Men and women who work on the production of our defense weapons must be well nourished.

Good nutrition is not entirely a question of income.

Thousands of women are attending free lectures on how to buy food and prepare meals which are nutritious and economical.

VI. INDUSTRIAL COSTUMES

Women working in industrial plants need costumes which are comfortable and safe around machinery. Uniforms which meet these needs have been designed.

Two-thirds of the jobs in defense industries can be done by women today, and officials of the defense program are advocating more extensive job training for women and girls.

These girls, already trained in our new defense program, are able to turn out small machine parts. More women are being trained in mechanical trades to meet the shortage of skilled labor, for drill presses, turret lathes, milling machines, planers and welding equipment.

COMMENTARY (cont'd)

VII. AIRCRAFT WORKERS

Women are being recruited daily to help make planes for the nation's air forces.

Three million women in factories all over the country are making things -- sewing strong fabrics, sewing control surfaces for our fighter planes.

In a war in which so many machines and tools, and so much metal is required, it is strange how much sewing there is. Women are bringing a natural skill to an important job. Their efficient contribution is helping us to speed up production of bombers and fighting ships.

VIII. PARACHUTE MAKERS

One parachute takes 65 yards of silk. Only silk has the lightness and strength essential in making parachutes. Women who have had special training in the manufacture of this product are the only ones who can be employed in these factories. A man's life depends on every parachute so there is no margin for error. The nimble fingers of these women are capable of turning out perfect workmanship on unbelievably fast-running machines.

IX. BALL BEARING ASSEMBLY

These highly specialized industries are finding women extraordinarily efficient and are using them more and more in the making of precision instruments which are so essential in war today. All of these instruments require ball bearings or roller bearings - bearings so precise that experts must use a microscope for assembly. This is work in which women excel - giving it constant care and alertness.

Women's hands - thousands of them - skillful, patient, and accurate -- are assembling parts, precisely dimensioned, without which no bomber could fly, and without which no mechanized land unit could move.

X. MAKING ELECTRIC SWITCHES

Every ship that glides down the ways must have electrical switches.

Women today are assembling, gauging, fitting together, riveting, drilling, and making them. This work requires fingers which move with lightning speed.

COMMENTARY (cont'd)

Every defense worker doing her job well - that's the battle of production and the essence of defense.

XI. SHELL INSPECTION

Women are working side by side with men on the assembly lines and in inspection units of munition factories.

Millions of shells are moving off the production lines in our great plants from coast to coast.

Shells for tanks and naval guns.

Shells for our coast and field artillery.

Shells for anti-aircraft defense.

Women are skillful in gauging and checking for minute imperfections.

Mass production is important when you realize that a single machine gun can fire 1400 rounds a minute.

XII. AMERICAN WOMEN'S VOLUNTARY SERVICES

Again we turn to the women who are asking, "What can I do for defense?"

The American Women's Voluntary Services provides instruction in many basic skills to over 80,000 women. Soon the Office of Civilian Defense will cooperate not only with the A.W.V.S. but with all other private and public agencies to aid volunteers in obtaining the training they want. They are learning lessons which are indispensable in war, valuable in peace.

XIII. RED CROSS SURGICAL DRESSINGS

The Red Cross today is the culmination of the work of a woman who pioneered under the duress of a war.

Clara Barton, its founder, determined that the care of the wounded should not be left to the unskilled. Today, true to its tradition, the American Red Cross volunteers are responding to the needs of war-distressed peoples.

25,000,000 and more surgical dressings have already been sent to Europe.

COMMENTARY (cont'd)

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The American Women's Voluntary Services provides instruction in many basic skills to over 80,000 women. Soon the Office of Civilian Defense will cooperate not only with the A.W.V.S. but with all other private and public agencies to aid volunteers in obtaining the training they want. They are learning lessons which are indispensable in war, valuable in peace.

XIII. RED CROSS SURGICAL DRESSINGS

The Red Cross today is the culmination of the work of a woman who pioneered under the duress of a war.

Clara Barton, its founder, determined that the care of the wounded should not be left to the unskilled. Today, true to its tradition, the American Red Cross volunteers are responding to the needs of war-distressed peoples.

25,000,000 and more surgical dressings have already been sent to Europe.

COMMENTARY (cont'd)

VII. AIRCRAFT WORKERS

Women are being recruited daily to help make planes for the nation's air forces.

Three million women in factories all over the country are making things - sewing strong fabrics, sewing control surfaces for our fighter planes.

In a war in which so many machines and tools, and so much metal is required, it is strange how much sewing there is. Women are bringing a natural skill to an important job. Their efficient contribution is helping us to speed up production of bombers and fighting ships.

VIII. PARACHUTE MAKERS

One parachute takes 65 yards of silk. Only silk has the lightness and strength essential in making parachutes. Women who have had special training in the manufacture of this product are the only ones who can be employed in these factories. A man's life depends on every parachute so there is no margin for error. The nimble fingers of these women are capable of turning out perfect workmanship on unbelievably fast-running machines.

IX. BALL BEARING ASSEMBLY

These highly specialized industries are finding women extraordinarily efficient and are using them more and more in the making of precision instruments which are so essential in war today. All of these instruments require ball bearings or roller bearings - bearings so precise that experts must use a microscope for assembly. This is work in which women excel - giving it constant care and alertness.

Women's hands - thousands of them - skillful, patient, and accurate - are assembling parts, precisely dimensioned, without which no bomber could fly, and without which no mechanized land unit could move.

X. MAKING ELECTRIC SWITCHES

Every ship that glides down the ways must have electrical switches.

Women today are assembling, gauging, fitting together, riveting, drilling, and making them. This work requires fingers which move with lightning speed.

COMMENTARY (cont'd)

Every defense worker doing her job well - that's the battle of production and the essence of defense.

XI. SHELL INSPECTION

Women are working side by side with men on the assembly lines and in inspection units of munition factories.

Millions of shells are moving off the production lines in our great plants from coast to coast.

Shells for tanks and naval guns.

Shells for our coast and field artillery.

Shells for anti-aircraft defense.

Women are skillful in gauging and checking for minute imperfections.

Mass production is important when you realize that a single machine gun can fire 1400 rounds a minute.

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COMMENTARY (cont'd)

XIV. BLOOD BANK

Medical science's newest weapon against death is the blood bank.

Thousands of women today are giving their blood, in preparation for a day we pray will never come, giving the essence of life to save life.

FINALE

Our history is full of the inspiration which our pioneer women left us as a proud heritage, and again today America women are stirred by that heritage - seving their country in the laboratory, on defense production lines, in the civilian defense services, and in the home, which is after all, the **first** line of defense.

Women have always been the guardians of the home and the children - the future of our country - and they are determined that our democracy shall survive and that our precious freedoms shall be preserved.

15775

PRODUCTION NOTES

The Office for Emergency Management's latest defense film, showing the activities of women in the emergency, was photographed in ten cities and towns. Enough footage was taken for an additional 2-reel picture, now in preparation, which will emphasize women in the voluntary sevices and be released through non-theatrical outlets.

Locations for WOMEN IN DEFENSE include: the Switlik Parachute Company, Trenton, New Jersey; the Curtiss-Wright Company, Buffalo, New York; the General Electric Company, Bloomfield, New Jersey; General Motors plants at Anderson, Indiana; Bristol, Connecticut; and Rochester, New York; the Red Cross chapters in Buffalo and New York City; the Washington, D.C., branch of the American Woman's Voluntary Services; and the Department of Agriculture's Beltsville Research Center at Beltsville, Maryland.

The various groups represented were photographed at their normal work; no scenes were staged.

After the photography was completed, a rough cut was made and screen for Mrs. Roosevelt. Immediately thereafter the rough cut was brought down to the present one-reel version for which Mrs. Roosevelt wrote the commentary.

Miss Hepburn narrated Mrs. Roosevelt's commentary. The voice track was combined with Jack Schaindlin's special musical score for the film, resulting in the finished picture.

Mrs. Roosevelt and Miss Hepburn volunteered their services to the Office for Emergency Management.

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15775

FILM NOTES: O.E.M. "DEFENSE REPORTS ON FILM"

WOMEN IN DEFENSE is one of a series of "defense reports on film" produced by the Office for Emergency Management Film Unit.

These defense reports are produced in one-reel and 3-minute "briefie" versions for theatrical use. POTS TO PLANES, a 3-minute subject, is now being released by the Motion Picture Committee Co-operating for National Defense. This briefie shows aluminum smelting of pots and pans collected in the recent aluminum salvage drive.

The Committee will soon release another briefie, FOOD FOR FREEDOM, showing America's food supply for the U. S. and Britain.

BOMBER, a one-reel subject for which Carl Sandburg, the distinguished poet and Pulitzer prize winner wrote the commentary, is now being distributed by the Motion Picture Committee.

The O.E.M. Film Unit has in production pictures which will cover other phases of the national defense effort. HOMES FOR DEFENSE, a one-reeler on defense housing, has just been completed.

TANKS (working title) has been photographed and will be completed for release soon. This picture will show for the first time on the popular screen the production, shipment and use of medium tanks for America's growing armored forces.

LAKE FREIGHTER, now being photographed, will trace the shipment of ore for defense from the iron mines of the North through the Great Lakes, Soo Canal, down to the manufacturing regions of Ohio and Pennsylvania.

In addition to theatrical releases, the O.E.M. Film Unit is now releasing non-theatrically POWER FOR DEFENSE, one-reel (defense manufacturing in the Tennessee Valley); ARMY IN OVERALLS, one-reel (C.C.C. in defense); ALUMINUM, one-reel (importation of bauxite and aluminum fabrication); BUILDING A BOMBER, two-reels (construction of the B-26 medium bomber); and NATIONAL DEFENSE REVIEWS No. 1 and No. 2, one-reel each.

Two-reel non-theatrical versions of WOMEN IN DEFENSE and TANKS are in preparation.

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Film to Show Plight Of Worker-Mother

1942

The film, "Children of Mars," a study of the problems of the children of war worker mothers, will be shown to an invited audience at the Interior Department auditorium at 8 p.m. today. The film will be shown under the auspices of the OCD Child Care and Protection Committee and Mrs. Henry P. Chandler, committee chairman, will preside.

A list of U.S.
WAR FILMS

FILMS OF THE ARMED FORCES — PAGE

UNITED STATES ARMY
  Recruiting and Induction Service 1
UNITED STATES NAVY
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  Marine Corps 2
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  Bureau of Mines 10
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  Bureau of Motion Pictures 11

Issued August, 1942

Bureau of Motion Pictures
OFFICE OF WAR INFORMATION
Washington, D.C.

To borrow any of the films listed on the following pages:

1. Note the method of distribution and the name and address of the distributor under which the film is listed. Write directly to that organization.

2. Note that rental costs or free availability is listed under each Government agency.

3. In practically all cases, exhibitors are asked to pay transportation charges to and from points of exhibition.

4. It is best to give an alternate choice of films if possible, and an alternate date. Definite dates must be given. Be sure that your first choice and alternate films are both from the same agency or distributor.

5. Try to make your requests for films at least three weeks in advance.

6. Specify whether you need 16mm or 35mm films. All of the films listed are sound productions. Do not attempt to run a 16mm sound picture on a silent projector.

7. If there is no express office in your town, please indicate the nearest town which does have express service.

8. Please return films promptly. Borrowers are held responsible for any damages.

UNITED STATES ARMY

Recruiting and Induction Service

The following 16mm sound motion pictures are available free of charge at most Main Stations of the U. S. Army Recruiting and Induction Service. They may be borrowed by schools and other civic groups from the Main Army Recruiting and Induction Stations listed below.

AIR ARMY (1 reel, 6 minutes) technicolor.

ARMY ON WHEELS (1 reel, 8 minutes) technicolor.

GUARDIAN OF THE COLORS (1 reel, 12 minutes) technicolor.

HERE COMES THE CAVALRY (1 reel, 12 minutes) technicolor.

LOOK TO LOCKHEED FOR LEADERSHIP (1 reel, 15 minutes) technicolor.

SERVICE WITH THE COLORS (1 reel, 12 minutes) technicolor.

THE TANKS ARE COMING (1 reel, 12 minutes) technicolor.

WINGS OF THE ARMY (1 reel, 15 minutes) technicolor.

WINGS OF STEEL (1 reel, 12 minutes) technicolor.

WINNING YOUR WINGS (1 reel, 15 minutes) technicolor.

Main Army Recruiting Stations

First Service Command	Headquarters, Boston, Mass.
Portland, Maine	463A Congress St.
Manchester, N. H.	32 Water St.
Rutland, Vt.	38½ Center St.
Boston, Mass.	269 Columbus Avenue
Providence, R. I.	40 Fountain St.
Hartford, Conn.	555 Asylum St.
Second Service Command	**Headquarters, Governors Island, N.Y.**
New York, N. Y.	39 Whitehall St.
Albany, N. Y.	Federal Bldg., Room 323
Syracuse, N. Y.	355 Federal Bldg.
Trenton, N. J.	P. O. Bldg.
Newark, N. J.	P. O. Bldg.
Third Service Command	**Headquarters, Baltimore, Md.**
Baltimore, Md.	1st Floor, Equitable Bldg., Calvert & Fayette Sts.
Harrisburg, Pa.	4th & Market Sts.
Philadelphia, Pa.	Customs House, Room 607, 2nd and Chestnut Sts.
Pittsburgh, Pa.	Old P. O. Bldg.
Richmond, Va.	Parcel Post Bldg.
Fourth Service Command	**Headquarters, Atlanta, Ga.**
Jacksonville, Fla.	250 P. O. & Court House Bldg.
Montgomery, Ala.	519 P. O. Bldg.
Charlotte, N. C.	P. O. Bldg.
Fifth Service Command	**Headquarters, Fort Hayes, Columbus, Ohio**
Columbus, Ohio	315 Old P. O. Bldg.
Cincinnati, Ohio	227 Federal Bldg.
Indianapolis, Ind.	431 Federal Bldg.
Charleston, W. Va.	11 Capitol St.
Sixth Service Command	**Headquarters, Chicago, Illinois**
Chicago, Ill.	515 S. Franklin St.
Peoria, Ill.	62 Federal Bldg.
Milwaukee, Wis.	428 Federal Bldg.
Detroit, Mich.	631 Federal Bldg.
Kalamazoo, Mich.	12 P. O. Bldg.
Seventh Service Command	**Headquarters, Omaha, Nebraska**
St. Louis, Mo.	921 New Federal Bldg.
Kansas City, Kan.	Wyandotte Court House
Omaha, Neb.	224 P. O. Bldg.
Des Moines, Iowa	115 Old Federal Bldg.
Minneapolis, Minn.	182 Federal Office Bldg.
Denver, Colorado	104 Old Customs Bldg., 16th and Arapahoe Sts.

Main Army Recruiting Stations (Continued)

Eighth Service Command — Headquarters, Fort Sam Houston, Texas

Lubbock, Tex.	P. O. Bldg., Room 200-206
Dallas, Tex.	Federal Bldg., Room 502
Houston, Tex.	232 Old City Hall Bldg.
San Antonio, Tex.	Builders Exchange Bldg., Pecan & St. Marys Sts.
Santa Fe, N. M.	217 P. O. Bldg.
Oklahoma City, Okla.	331 P. O. Bldg.
Little Rock, Arkansas	67 New Federal Bldg.
New Orleans, La.	429-431 Carondlet St.

Ninth Service Command — Headquarters, Fort Douglas, Utah

San Francisco, Calif.	444 Market St.
Los Angeles, Calif.	1755 P. O. & Court House
Portland, Ore.	323 Main P. O. Bldg.
Salt Lake City, Utah	223 Ness Bldg.
Seattle, Wash.	609 Stewart St., Lloyd Bldg.
Butte, Montana	Old High School Bldg.
Phoenix, Arizona	414 Luhrs Bldg.

UNITED STATES COAST GUARD

For the following films, write to the Coast Guard Headquarters, Washington, D. C., or to the District Coast Guard Officers listed below. They are free of charge.

CADET CRUISE (1 reel, 10 minutes) 16 and 35mm, sound (1940)
Illustrates the life and work of the Cadet while attending the Coast Guard Academy at New London, Connecticut, and while on a Cadet training cruise aboard a Coast Guard Cutter visiting foreign lands.

COAST GUARD ACADEMY, THE (2 reels, 17 minutes) 16 and 35mm, sound (1940)
(2 reels, 22 minutes) 16mm, color, sound (1942)
Illustrates the various activities comprising student life at the Coast Guard Academy at New London, Connecticut. Drills, study periods, training in small boats, machine shops, living quarters, sports, and social activities are depicted.

MEN OF THE COAST GUARD (2 reels, 30 minutes) 16 and 35mm, sound (1940)
A general film depicting the more important activities of the Service, with special emphasis on training.

OFFSHORE PATROL (1 reel, 10 minutes) 16 and 35mm, sound (1940)
Shows the work of the Coast Guard men aboard sea-going cruising cutters. Scenes show actual patrol in the North Atlantic and life aboard a ship on weather patrol station.

District Coast Guard Officers

1st Naval District, 1401 Custom House, Boston, Massachusetts
3rd Naval District, 411 Custom House, New York, New York
4th Naval District, 803 Custom House, Philadelphia, Pennsylvania
5th Naval District, Box 540, New Post Office Building, Norfolk, Virginia
6th Naval District, Foot of Tradd Street, Box 855, Charleston, South Carolina
7th Naval District, Dupont Building, Miami, Florida
8th Naval District, 327 Custom House, Canal Street, New Orleans, Louisiana
9th Naval District, 1700 Keith Building, 1620 Euclid Avenue, Cleveland, Ohio
9th Naval District, Custom House, 610 South Canal Street, Chicago, Illinois
9th Naval District, 232 Old Custom House, 8th and Olive Street, St. Louis, Missouri
10th Naval District, San Juan, Puerto Rico
11th Naval District, Federal Building, Long Beach, California
12th Naval District, 425 Custom House, San Francisco, California
13th Naval District, 550 Federal Office Building, Seattle, Washington
13th Naval District, Ketchikan, Alaska
14th Naval District, Honolulu, T. H.

UNITED STATES DEPARTMENT OF THE NAVY

United States Marine Corps

The following films may be obtained free of charge from the Marine Corps Photographic Section, Marine Corps Schools, Quantico, Virginia.

CANDIDATES CLASS (2 reels, 16 minutes) 16 and 35mm, sound (1942)
Candidates Class training for reserve commissions in the Marine Corps.

FROM SHIPS OF THE AIR (1 reel, 8 minutes) 16 and 35mm, sound (1941)
Paratroop training for marines at Lakehurst, New Jersey.

UNITED STATES DEPARTMENT OF THE NAVY (Continued)

MARINE CORPS NEWS, VOLS. I and II (1 reel, 10 minutes, each) 16 and 35mm, sound (1942)
Newsreels of current activities of the Marine Corps.

MARINES HAVE LANDED, THE (1 reel, 10 minutes) 16 and 35mm, sound (1942)
Covers general activities of the Marines.

PASS IN REVIEW (1 reel, 9 minutes) 16 and 35mm, sound (1942)
Current activities of Marines.

SOLDIERS OF THE SEA (2 reels, 18 minutes) 16 and 35mm, sound (1938)
General information on Marine Corps training.

UNITED STATES DEPARTMENT OF THE NAVY

The following films are loaned free of charge. Write to your nearest U. S. Navy Recruiting Station as shown below:

MODERN MAN-O'-WARSMEN (2 reels, 20 minutes) 16 and 35mm, sound (1937)
Shipboard scenes, showing the daily routine from reveille to taps.

NAVY WINGS OF GOLD (2 reels, 22 minutes) 16 and 35mm, sound (1938)
Flight training at Pensacola, Florida.

SERVICE IN SUBMARINES (1 reel, 10 minutes) 16 and 35mm, sound (1938)
Training personnel for submarine duty.

REPAIR, SUPPLY AND RELIEF (2 reels, 22 minutes) 16 and 35mm, sound (1939)
Activities of the Base Force.

FIRST LINE OF DEFENSE (1 reel, 11 minutes) 16 and 35mm, sound (1940)
Fleet maneuvers at sea.

SUBMARINES AT SEA (1 reel, 11 minutes) 16 and 35mm, sound (1940)
Submarine operations at sea.

EYES OF THE NAVY (2 reels, 20 minutes) 16mm, sound (1940)
Training aviation personnel--ashore and afloat. Air operations with U. S. Fleet.

AMERICAN SEA POWER (1 reel, 11 minutes) 16mm, sound (1941)
Two-ocean Navy--commentary by Lowell Thomas. Shipboard routine--reveille to taps.

ONE SUNDAY MORNING IN HAWAII (1/3 reel, 3 minutes) 16 and 35mm, sound (1942) (Trailer)
Reminder of Japanese attack on Pearl Harbor on December 7, 1941, and appeal for enlistment for attrition.

MAIN DISTRIBUTING CENTERS

U. S. Navy Recruiting Stations at

ALBANY, NEW YORK	Post Office Building
BALTIMORE, MARYLAND	Post Office Building
BIRMINGHAM, ALABAMA	Post Office & Court House Building
BOSTON, MASSACHUSETTS	New Court House & Post Office Building
BUFFALO, NEW YORK	Post Office Building
CHICAGO, ILLINOIS	U. S. Court House
CINCINNATI, OHIO	Court House & Post Office Building
CLEVELAND, OHIO	Old Post Office Building
DALLAS, TEXAS	Post Office and Court House
DENVER, COLORADO	U. S. Customs House
DES MOINES, IOWA	Old Post Office Building
DETROIT, MICHIGAN	New Federal Building
HOUSTON, TEXAS	Post Office Building
INDIANAPOLIS, INDIANA	Post Office Building
KANSAS CITY, MISSOURI	U. S. Court House
LITTLE ROCK, ARKANSAS	Federal Building
LOS ANGELES, CALIFORNIA	Post Office and Court House
LOUISVILLE, KENTUCKY	Post Office Building
MACON, GEORGIA	Post Office Building
MINNEAPOLIS, MINNESOTA	Federal Office Building
NASHVILLE, TENNESSEE	U. S. Court House
NEW HAVEN, CONNECTICUT	Post Office Building
NEW ORLEANS, LOUISIANA	Federal Office Building
NEW YORK, NEW YORK	Federal Office Building, 90 Church St.
OKLAHOMA CITY, OKLAHOMA	Post Office Building
OMAHA, NEBRASKA	Federal Office Building
PHILADELPHIA, PENNSYLVANIA	U. S. Customs House
PITTSBURGH, PENNSYLVANIA	Old Federal Building
PORTLAND, OREGON	U. S. Court House
RALEIGH, NORTH CAROLINA	Federal Building
RICHMOND, VIRGINIA	Parcel Post Bldg., 11th & Main Sts.
SALT LAKE CITY, UTAH	Federal Building
SAN DIEGO, CALIFORNIA	Post Office Building
SAN FRANCISCO, CALIFORNIA	Federal Office Building
SEATTLE, WASHINGTON	Federal Office Building
SPRINGFIELD, MASSACHUSETTS	Post Office Building
ST. LOUIS, MISSOURI	U. S. Court & Customs House

CIVILIAN DEFENSE TRAINING

OFFICE OF CIVILIAN DEFENSE

THE AIR RAID WARDEN (2 reels, 20 minutes) 16 and 35mm, sound (1942)
Dramatizes the duties of an air raid warden and shows how he carries on during a raid.

The above film may be obtained from the following Civilian Defense Regional Offices:

Region I

Mr. Joseph M. Loughlin, Dir.
First Civilian Defense Region
17 Court Street
Boston, Massachusetts

States Included

Maine
New Hampshire
Vermont
Rhode Island
Massachusetts
Connecticut

Region II

Col. Walter W. Metcalf, Acting Dir.
Second Civilian Defense Region
111 Eighth Avenue
New York, New York

States Included

New York
New Jersey
New York City
Delaware

Region III

Mr. Rowland K. Adams, Director
Third Civilian Defense Region
1554 Baltimore Trust Building
Baltimore, Maryland

States Included

Pennsylvania
Maryland
District of Columbia
Virginia

Region IV

Mr. Charles H. Murchison, Dir.
Fourth Civilian Defense Region
Candler Building
Atlanta, Georgia

States Included

North Carolina
Tennessee
South Carolina
Mississippi
Georgia
Florida
Alabama

Region V

Mr. Dan T. Moore, Dir.
Fifth Civilian Defense Region
1530 Standard Building
Cleveland, Ohio

States Included

Ohio
West Virginia
Kentucky
Indiana

Region VI

Mr. Raymond J. Kelly, Dir.
Sixth Civilian Defense Region
2620 Civic Opera Building
20 North Wacker Drive
Chicago, Illinois

States Included

Michigan
Wisconsin
Illinois
Chicago

Region VII

Mr. Joseph D. Scholtz, Dir.
Seventh Civilian Defense Region
506 Grain Exchange Building
19th and Harney Streets
Omaha, Nebraska

States Included

Minnesota
Iowa
North Dakota
South Dakota
Colorado
Nebraska
Missouri
Kansas
Wyoming

Region VIII

Mr. R. E. Smith, Dir.
Eighth Civilian Defense Region
Majestic Building
San Antonio, Texas

States Included

Louisiana
New Mexico
Oklahoma
Texas
Arkansas

Region IX

Mr. James C. Sheppard, Dir.
Ninth Civilian Defense Region
1355 Market Street
San Francisco, California

States Included

Montana
Idaho
Washington
California
Utah
Nevada
Arizona
Oregon

U. S. DEPARTMENT OF WAR

The following training films may be obtained on loan from the nine Army Service Commands, with headquarters in the following cities:

Boston, Massachusetts
Governors Island, New York
Baltimore, Maryland
Atlanta, Georgia
Fort Sam Houston, San Antonio, Texas
Fort Hayes, Columbus, Ohio
Chicago, Illinois
Omaha, Nebraska
Fort Douglas, Utah

CIVILIAN DEFENSE TRAINING (Continued)

U. S. DEPARTMENT OF WAR (Continued)

The War Department loan policy has been extended to include civilian defense agencies and state defense councils. These films can also be purchased by such agencies from Deluxe Laboratories, 850 Tenth Avenue, New York City.

Number	Title
5-12	Map Reading (2 reels, 43 minutes)
8-33	First Aid (1 reel, 33 minutes)
8-150	First Aid - Part IV - Injuries and Accidents (1 reel, 26 minutes)
11-184	Conduct of Physical Training (1 reel, 20 minutes)
3-216	Adjustment of the Service Gas Mask (1 reel, 17 minutes)
3-217	Inspection of the Service Gas Mask (1 reel, 9 minutes)
3-218	Adjustment of the Training Gas Mask (1 reel, 17 minutes)
3-219	Inspection of the Training Gas Mask (1 reel, 8 minutes)
1-226	Aerial Bombs - Loaded (1 reel, 13 minutes)
8-304	First Aid for Gas Casualties (1 reel, 20 minutes)
11-325	Safeguarding and Proper Handling of Classified Material (1 reel, 18 minutes)
11-551	The Motor Vehicle Driver - Responsibility, Nomenclature, Fire Regulations, Accident Prevention (1 reel, 25 minutes)
11-552	The Motor Vehicle Driver - Road Rules and Regulations (1 reel, 26 minutes)
11-553	The Motor Vehicle Driver - Elementary Driving Instructions and Inspection (1 reel, 25 minutes)
11-554	The Motor Vehicle Driver - Difficult Driving (1 reel, 18 minutes)
11-555	The Motor Vehicle Driver - Traction Aids and The Winch (1 reel, 27 minutes)
11-556	The Motor Vehicle Driver - Map Reading (1 reel, 10 minutes)
11-557	The Motor Vehicle Driver - Night Driving (1 reel, 21 minutes)
11-558	The Motor Vehicle Driver - First Echelon Maintenance (1 reel, 35 minutes)
11-559	The Motor Vehicle Driver - Loading, Trouble Shooting, Reports and Vehicle Abuse (1 reel, 27 minutes)
1-258	Indentification of Aircraft - General Characteristics and Types of United States Military Airplanes (1 reel, 8 minutes)
1-259	Indentification of Aircraft - Distinguishing Features of U. S. Military Airplanes (1 reel, 15 minutes)

FEDERAL SECURITY AGENCY

Office of Education

The following 16mm sound training motion pictures were developed by the Office of Education. They are distributed on a sales basis by Castle Films, Inc., Rockefeller Plaza, New York, New York (also Chicago, Illinois, and San Francisco, California). Film libraries are encouraged to purchase prints so that they may be made available on a rental basis to interested groups.

Precision Measuring

The Steel Rule
The Micrometer
Fixed Gages
Vernier Scale
Height Gages and Standard Indicators

The Engine Lathe

Rough Turning Between Centers
Turning Work of Two Diameters
Cutting a Taper with Compound Rest and Taper Attachment
Drilling, Boring and Reaming Work Held in Chuck
Cutting an External National Fine Thread
Turning a Taper with Tailstock Set Over
Cutting an External Acme Thread

The Milling Machine

The Milling Machine
Cutting Keyways
Straddle and Surface Milling to Close Tolerance
Straddle Milling
Plain Indexing and Cutting a Spur Gear

Vertical Boring Mill

Rough Facing, Turning and Drilling on a Vertical Turret Lathe
Rough Facing and Boring and Turning a Shoulder
Facing, Turning, Boring, Grooving, Chamfering on a Vertical Turret Lathe Using Two Heads

The Shaper

Cutting a Keyway on End of a Finished Shaft
Machining a Rectangular Cast Iron Block
Machining a Tool Steel V Block
Drilling and Tapping a Cast Steel Valve Body
Drilling and Spotfacing a Cast Iron Valve Body

Shipbuilding Skills

Preparing and Setting a Keel Block and Bottom Cradle
Innerbottom Sections:
  Sub Assembly of a Closed Floor
  Sub Assembly of an Open Floor
The Innerbottom:
  Setting up Floors and Longitudinals
Side Frames: Sub Assembly of a Web Frame
Deck Girders: Sub Assembly
The Deck: Setting a Web Frame and a Transverse Beam
The Bulkhead: Laying Off the Boundary, Stiffeners, Water Lines, and Buttock Lines
Bulkhead: Laying Off and Fitting a Centerline Stiffener.
The Bulkhead: Setting a Transverse Watertight Bulkead Into the Hull
Deck Plates: Regulating and Setting

Bench Work

Threading With use of Taps and Dies
Scraping Flat Surfaces
Scraping and Fitting Small Bearings
Reaming With Straight Hand Reamers
Reaming With Taper Hand Reamers
Laying Out Small Castings
Centering Small Stock
Fundamentals of Filing

Single Point Cutting Tools

Fundamentals of Side Cutting Tools
Fundamentals of End Cutting Tools

The Sensitive Drill

Drilling a Pin

The Vertical Drill

Locating Holes, Drilling and Tapping in Cast Iron
Countersinking, Counterboring and Spot Facing

U. S. DEPARTMENT OF AGRICULTURE

For the following films, write to the depository in your state listed below, or to the U. S. Department of Agriculture, Division of Motion Pictures, Washington, D. C. Department employees and State extension workers may obtain prints on deposit with the depositories free of service charge for use in their work. Most of these organizations find it necessary to charge other borrowers a nominal service fee.

DEMOCRACY IN ACTION (1 reel, 11 minutes) 16 and 35mm, sound (1942)
Shows the vast agricultural resources of this country; the democratic procedures followed by farmers in carrying out the AAA farm program; how these procedures are helping farmers to produce more of the foods needed in the war program.

FARM FRONT (1 reel, 11 minutes) 16 and 35mm, sound (1941)
A documentary picture telling the story of the American farmer in national defense. It points out the relation of his work to the American ideal of the United States as a land of opportunity for all, and shows how he is working with industry to safeguard the American Freedoms.

FOR HEALTH AND HAPPINESS (1 reel, 9 minutes) 16mm, silent and sound, color (1941)
Discusses the vital bearing good nutrition has on human health and happiness. Shows scenes of well-nourished children from infancy to youth, and the food groups that contribute to all-round development.

ON THE ROAD TO TOMORROW (1 reel, 10 minutes) 16 and 35mm, sound (1941)
Shows the youth of many lands and different races engaged in youth activites; explains our own youth movement in the 4-H Clubs, representing the great basic industry of agriculture, its spread into many foreign lands, and the results and significance of work and training of 4-H Club members.

PLOWS, PLANES AND PEACE (2 reels, 17 minutes) 16 and 35mm, sound (1941)
While America builds strength for defense in the skies, on land and sea, seven million farmers build strong defenses against hunger and lack of vital supplies through the national farm program. The film portrays the activities of farmers in providing abundant food supplies to meet war requirements.

Depositories

Alaska. Extension Service, University of Alaska, College.

Arizona. Extension Division, University of Arizona, Tucson; also, Extension Division, University of California, Los Angeles.

California. Extension Division, University of California, Berkeley, (serves northern California); Extension Division, University of California, 815 South Hill Street, Los Angeles, (serves southern California).

Florida. Department of Visual Instruction, General Extension Division, University of Florida, Gainesville.

Georgia. Division of General Extension, University System of Georgia, 223 Walton Street, N.W., Atlanta.

Idaho. Extension Service, College of Agriculture, University of Idaho, Boise.

Illinois. Visual Aids Service, University of Illinois, Urbana.

Indiana. Bureau of Visual Instruction, Extension Division, Indiana University, Bloomington.

Iowa. Visual Instruction Service, Iowa State College, Ames.

Kansas. Bureau of Visual Instruction, University Extension Division, University of Kansas, Lawrence.

Kentucky. Department of Visual Aids, University of Kentucky, Lexington.

Massachusetts. Extension Service, College of Agriculture, Amherst.

Michigan. Extension Service, University of Michigan, Ann Arbor; also, State Extension Service, Michigan State College, East Lansing.

Montana. Montana State College of Agriculture and Mechanic Arts, Bozeman.

Nebraska. University Extension Division, University of Nebraska, Lincoln.

Nevada. Extension Division, University of California, Berkeley, California.

New Hampshire. Extension Service, University of New Hampshire, Durham.

New Jersey. New Jersey State Museum, State House Annex, Trenton.

New Mexico. Museum of New Mexico, Santa Fe.

North Carolina. Bureau of Visual Instruction, University of North Carolina, Chapel Hill.

North Dakota. Department of Information, North Dakota Agricultural College, Fargo.

Oregon. Department of Visual Instruction, Oregon Agricultural College, Corvallis.

Oklahoma. Extension Service, Oklahoma A and M College, Stillwater.

Puerto Rico. Extension Service, University of Puerto Rico, Rio Piedras.

South Carolina. Extension Division, University of South Carolina, Columbia.

South Dakota. Extension Division, University of South Dakota, Vermillion; also, Extension Service, South Dakota State College of Agriculture, Brookings.

U. S. DEPARTMENT OF AGRICULTURE (Continued)

Tennessee. Division of University Extension, University of Tennessee, Knoxville.

Texas. Visual Instruction Bureau, University of Texas, Austin; also, Extension Service, A and M College of Texas, College Station.

Utah. Extension Division, University of California, Berkeley, California.

Vermont. Robert Hull Fleming Museum, University of Vermont, Burlington.

Washington. Extension Service, State College of Washington, Pullman; also, Department of Visual Instruction, Oregon Agricultural College, Corvallis, Oregon.

West Virginia.* The Library, University of West Virginia, Morgantown.

Wisconsin. Bureau of Visual Instruction, University of Wisconsin, Madison.

Wyoming. Department of Visual Instruction, Oregon Agricultural College, Corvallis, Oregon.

OFFICE OF THE BITUMINOUS COAL CONSUMERS' COUNSEL

For the following film write to the Office of the Bituminous Coal Consumers' Counsel, Post Office Box 483, Washington, D. C.

COAL FOR VICTORY (1/2 reel, 5 minutes) 16 and 35mm, sound (1942) (Free)
Necessity and directions for conserving coal for war production.

OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS

The following films are being distributed in the United States as that portion of the Coordinator's program which attempts to improve understanding and good will between people of the Americas by showing audiences in the United States various aspects of their Good Neighbors to the South. Films are obtainable, free of charge, from the Office of the Coordinator of Inter-American Affairs, 444 Madison Avenue, New York City, and from State University Extension Libraries, Y.M.C.A. and other repositories.

A LINE FROM YUCATAN (1 reel) 16mm, sound
Planters on Mexico's famed peninsula meet the opportunity to provide sisal hemp when war closes sources in the Pacific.

AMERICANS ALL (2 reels) 16mm, sound
Story of the young people who live and work and play between the Straits of Magellan and the Rio Grande River. Intended to give the people of the United States a better understanding of their little-known fellow Americans to the South.
Produced and narrated by Julien Bryan.

ARGENTINE SOIL (2 reels) 16mm, sound
Impressive evidence of the richness of Argentine natural resources. After the unusual panorama of Buenos Aires we pass to the open spaces where we see vast herds of wild horses, sheep and cattle; then inspect magnificent cataracts and rivers, the cultivation of mate, tobacco, cotton and fruit. Last we see an agricultural fair with prize bulls on parade.

BRAZIL (1 reel) 16mm, sound
A picture of three great cities--Rio de Janeiro, Santos, and Sao Paulo--and of the Amazon River Valley.

BRAZIL GETS THE NEWS (1 reel) 16mm, sound
The activities of the editorial and technical departments of a great modern newspaper in Sao Paulo.

BUENOS AIRES AND MONTEVIDEO (1 reel) 16mm, sound
Many aspects of life in the Argentine capital and glimpses of Uruguay's chief city and its gay carnivals.

COLOMBIA (1 reel) 16mm, sound
The old port of Barranquilla and the fine old towns of Bogota and Cartagena, and Colombia's charming countryside.

COLOMBIA, CROSSROADS OF THE AMERICAS (2½ reels) 16mm, sound
An excellent informational picture of South America's northernmost country. Shows extensively the nation, from the lowlands, over the Andes to Bogota, with its natural resources and its people.

FIESTA OF THE HILLS (1 reel) 16mm, sound
A Mexican fiesta picture, produced by Ralph Gray.

FIRE AND WATER (1 reel) 16mm, sound
The Lenten Fiesta at Taxco, where dancers of the True Cross perform to the noise of exploding firecrackers. Also, Almalaya del Rio, where Apache dances accompany the blessing of the headwaters of the River Lerma.

HIGH SPOTS OF A HIGH COUNTRY (2 reels) 16mm, sound
The people of Guatemala and their volcanic country, with its romantic old cities, its markets and farms.

JUNGLE QUEST FOR THE GREAT STONE HEADS (3 reels) 16mm, sound
Discovery of long buried heroic sculpture left by the Olmecs of the state of Vera Cruz.

MEXICO BUILDS A DEMOCRACY (2 reels) 16mm, sound
Work of the Mexican Government in bringing education to its Tarascan people.

ORCHIDS (1 reel) 16mm, sound
The story, magnificently illustrated in color, of orchids and other tropical flora in South America.

**Serves only Department of Agriculture workers.*

OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS (Continued)

OUR NEIGHBORS DOWN THE ROAD (4 reels) 16mm, sound

An automobile tour, much of it on the Pan-American Highway, from Caracas to the Straits of Magellan.

PATAGONIAN PLAYGROUND (1 reel) 16mm, sound

The scenic beauty and summertime fun of Argentina's Nahuel Huapi Park, on the eastern slope of the Andes.

SKY DANCERS OF PAPANTLA (1 reel) 16mm, sound

Mexico's unique Corpus Christi festival, which culminates in the headlong descent of dancers from a pole.

SUNDAYS IN THE VALLEY OF MEXICO (1 reel) 16mm, sound

Things to do and see on Sundays near Mexico City--from viewing pyramids to modern dancing.

THE BOUNTEOUS EARTH (1 reel) 16mm, sound

Dances accompanying the blessing of the animals on Candlemas Day in the City of Cholula (City of Churches). The violent rites at Tlocotalapan, where a young bull is set at large to be baited by the entire community.

THE DAY IS NEW (1 reel) 16mm, sound

A day in the life of the Mexican people, picturing their varied daily activities, from dawn to night.

THE HILL TOWNS OF GUATEMALA (1 reel) 16mm, sound

The fascinating life of several small towns perched on the slopes of an extinct volcanic mountain.

TREASURE TROVE OF JADE (4 reels) 16mm, sound

Further discoveries, including the largest collection of early American jade ever found.

VENEZUELA (1 reel) 16mm, sound

The capital city of Caracas and the port of La Guaira, sugar plantations, and colonial forts and trails.

WOODEN FACES OF TOTONICAPAN (1 reel) 16mm, sound

Guatemalan fiestas, including the breath-taking climax of Chichicastenango's famous eight-day celebration.

FEDERAL SECURITY AGENCY

National Youth Administration

The following films may be obtained from the Regional Youth Administrators of the National Youth Administration listed below. They are free of charge.

TRAINING WOMEN FOR WAR PRODUCTION (1 reel, 10 minutes) 16mm, sound, color (1942)

Illustrates how the National Youth Administration's production training program is preparing thousands of women for war industries in such occupations as machine tool operation, mechanical inspection, assembly work, radio, as well as in health and hospital work.

WORK CENTERS FOR VICTORY (1 reel, 12 minutes) 16mm, sound, color (1941)

Shows the many work experience opportunities afforded boys and girls, white and negro, by the National Youth Administration. Shows scenes of "experience on the job" which enables thousands of youth to obtain work in private industry.

YOUTH, JOBS AND DEFENSE (1 reel, 12 minutes) 16mm, sound, color (1941)

Depicts briefly how the NYA is providing young people with practical experience and training for jobs in war industries--some of the 400,000 NYA youth who have gone into private employment in the last 12 months are shown at work in a large aircraft plant. Melvyn Douglas provides the commentary.

The following film was produced by the Illinois National Youth Administration, and may be borrowed by writing to the Regional Youth Administrator, Civic Opera Building, 20 North Wacker Drive, Chicago, Illinois:

YOUTH ON THE INDUSTRIAL FRONT (2½ reels, 25 minutes) 16mm, sound (1941)

Shows boys in training in radio, machine shops, and automotive experience. Also boys actually on the job in the production of war materials.

Regional NYA Office	Region
Leon J. Kowal, Adm., 10 Post Office Square, Boston, Massachusetts.	Maine, New Hampshire, Vermont, New York State, New York City, Rhode Island, Connecticut, Massachusetts
John N. Patterson, Adm., 500 South Front Street, Harrisburg, Pennsylvania.	New Jersey, Delaware, Pennsylvania
Glenn S. Callaghan, Adm., Atlas Building, Quarrier St., Charleston, West Virginia.	District of Columbia, North Carolina, West Virginia, Virginia, Maryland
Orin W. Kaye, Adm., Hoster Building, Columbus, Ohio.	Kentucky, Michigan, Ohio

FEDERAL SECURITY AGENCY (Continued)

Robert S. Richey, Adm., Civic Opera Building, 20 North Wacker Drive, Chicago, Illinois.	Indiana, Wisconsin, Illinois
Boisfeuillet Jones, Adm., 10 Forsyth Street Bldg., Atlanta, Georgia.	Georgia, Alabama, Florida, South Carolina, Tennessee, Mississippi
Chester B. Lund, Adm., 44 East 6th Street, St. Paul, Minnesota	Minnesota, North Dakota, South Dakota, Nebraska, Iowa
Miss Anne Laughlin, Adm., New England Building, Topeka, Kansas.	Missouri, Oklahoma, Arkansas, Kansas
J.C. Kellam, Adm., 714 Brown Building, Austin, Texas.	Louisiana, New Mexico, Texas
William W. Gartin, Adm., 810 - 14th Street, Denver, Colorado.	Montana, Idaho, Utah, Wyoming, Arizona, Colorado
W. G. Frischknecht, Adm., 2328 West 7th Street, Los Angeles, California.	California, Washington, Oregon, Nevada

U. S. Public Health Service

For the following film write to the Federal Security Agency, U. S. Public Health Service, Washington, D. C.

ABOUT FACES (1 reel, 15 minutes) 16mm, sound, color; 16 and 35mm, sound, black-and-white (1941) (Free)
Entertaining subject on dental health. Follows "Danny" from the cradle to his induction in the Army, stressing importance of dental care.

Prints of the following film have been made available to all State Health Offices from which they may be borrowed. It will be shown exclusively under the supervision and authority of local health departments.

KNOW FOR SURE (Venereal Disease) (1 reel, 10 minutes) 16 and 35mm, sound (1942) (Free)
A very frank treatment FOR MALE AUDIENCES ONLY, particularly for men in camps and war industries. Deals with prophylaxis, diagnosis, and clinical treatment. Also gives attention to follow-up treatment, sources of infection, and community control. Made in Hollywood, produced by Darryl Zanuck, directed by Lewis Milestone, for the Public Health Service.

DEPARTMENT OF THE INTERIOR

Bureau of Mines

The Bureau of Mines has many films, both sound and silent, in both 16 and 35mm widths, depicting mining operations and related manufacturing processes. They show where minerals are found and how they are extracted from the earth, manufactured or refined into useful everyday products, utilized, and conserved. The films deal with such minerals and mineral products as aluminum, asbestos, abrasives, acetylene, coal, concrete, copper, glass, iron, steel, lead, gasoline, petroleum, nickel, sulphur, and related subjects. They are available to Governmental agencies, educational institutions, engineering and scientific societies, civic and business associations, clubs, churches, and other responsible organizations.

These films are produced and circulated under the direction of Allan Sherman, Chief, Information Division, Bureau of Mines, Washington, D. C. The cost of production is paid by cooperating industrial concerns. The pictures are free from trade-marks, trade names, or other direct advertising material. Production is in charge of M. F. Leopold, Supervising Engineer, Motion Picture Production Section, Bureau of Mines, Washington, D. C. Address inquiries concerning production and revision to him.

Distribution of the films is in charge of:
Louis F. Perry, Supervising Engineer
Graphic Services Section
Bureau of Mines Experiment Station
4800 Forbes Street
Pittsburgh, Pennsylvania

A complete library of all pictures is maintained at the above address. For the convenience of borrowers distant from Pittsburgh, copies of certain films are deposited at sub-distributing centers, selected with regard to accessibility.

OFFICE OF WAR INFORMATION

Bureau of Motion Pictures

OBTAIN FILMS FROM YOUR NEAREST DISTRIBUTOR.

The following films are available from the distributors listed below. Distributors are permitted to make a service charge to the user not to exceed 50¢ for the first subject and 25¢ for each additional subject included in a single shipment. Transportation costs are additional. An attendance report card, stamped with your distributor's name, will be enclosed with each film shipment. Please fill them out and return them promptly to the Bureau of Motion Pictures, Office of War Information, Washington, D. C. No postage is necessary. 35mm sound prints are obtainable from the Office of War Information Film Unit, 35 West 45th Street, New York City.

*ALUMINUM (1 reel, 9 minutes) 16 and 35mm, sound (1941)
This is the story of the "fateful metal"; importation of bauxite; transmutation into alumina and thence into aluminum sheeting and subsequently into fighting planes. This behind-the-scenes story of our most strategic metal is told in striking photography and eloquent commentary. Photographed on the Gulf Coast and at leading reduction and sheet-rolling plants, chiefly in the South.

BOMBER (1 reel, 10 minutes) 16 and 35mm, sound (1941)
This subject shows the manufacture of the Martin B-26 medium bomber and suggests its speed and power as a combat plane. "As a production it ranks with the finest documentary films ever made. The camera work is excellent, with each frame a perfect photograph. A special commentary, written by Carl Sandburg, stresses power and certainty in its poetic composition."--The Hollywood Reporter.

*BUILDING A BOMBER (2 reels, 20 minutes) 16 and 35mm, sound (1941)
This is an educational exposition on the building of the B-26 U. S. Army medium bomber, and is of considerable interest to engineering schools, vocational groups, and educational organizations eager to learn how our skyfighters are made.

*BUILDING A TANK (2 reels, 20 minutes) 16 and 35mm, sound (1942)
The speed-up of the tank production program is shown, giving technical detail regarding construction and processes involved in the manufacture of the M-3 medium tank.

*DEFENSE REVIEW NO. 3 (1 reel, 9 minutes) 16 and 35mm, sound (1942)
This film includes three 3-minute stories: RIVERBOAT, showing inland waterway transportation of defense products and raw materials; YOUNG EAGLES, showing air pilot training with emphasis on the Link trainer; FOOD FOR FREEDOM on the agricultural food supply for the United States and Great Britain.

DEMOCRACY IN ACTION (1 reel, 11 minutes) 16 and 35mm, sound (1942)
Shows the vast agricultural resources of this country; the democratic procedures followed by farmers in carrying out the AAA farm program; how these procedures are helping farmers to produce more of the foods needed in the war program.

LAKE CARRIER (1 reel, 9 minutes) 16 and 35mm, sound (1942)
This film shows the part played by lake freighters on the inland waterways carrying iron ore 1,000 miles to the steel mills of midwest industrial cities. Narration by Frederic March.

*MEN AND SHIPS (2 reels, 22 minutes) 16 and 35mm, sound (1940)
This is a picturization of training officers and seamen in our growing merchant marine. Magnificent photography, a special score played by musicians from New York Philharmonic Symphony.

*POWER FOR DEFENSE (1 reel, 10 minutes) 16 and 35mm, sound (1942)
This film shows the variety of interesting uses of hydroelectric power in the Tennessee Valley. Production of munitions, shells, army shoes, aluminum, airplanes, uniforms, textiles, and other materials is shown. Photographed in the Tennessee Valley. Produced by the National Defense Advisory Commission in cooperation with the Tennessee Valley Authority.

RING OF STEEL (1 reel, 10 minutes) 16 and 35mm, sound (1942)
This dramatic subject pictures the American soldiers as they are now, carrying on the traditions of past accomplishment, and outlines the part of the American soldier in the growth of the nation. Narration by Spencer Tracy. Many scenes of battlegrounds famous in American history.

SAFEGUARDING MILITARY INFORMATION (1 reel, 10 minutes) 16 and 35mm, sound (1942)
This film was originally made by the Motion Picture Academy of Arts and Sciences as a training film for the U. S. Army, and is now being shown generally throughout the country. It stresses the importance of secrecy on the part of military personnel and workers engaged in defense activities, and shows the results of careless talk, dramatic scenes of ship explosion, sabotage, and disastrous events resulting from thoughtless revelation of information to the enemy.

SONG SHORTS (1/3 reel, 3 minutes, each) 16 and 35mm, sound (1942)
ANCHORS AWEIGH - Splendid background scenes of the Navy at sea stir the audience while Conrad Thibault sings the Navy song in a rousing manner. The audience joins in the last chorus.
KEEP 'EM ROLLING - A rousing, patriotic subject, with production scenes as a kaleidoscopic background for the song. The Rogers and Hart song is sung by Jan Peerce "off screen," and the audience is asked to join in the last chorus, with guiding words superimposed upon the film scenes of industry in action to "keep 'em rolling."
THE CAISSONS GO ROLLING ALONG - Robert Weede sings this well-known song of the Field Artillery, "off screen." Scenes of the Field Artillery in action make a stirring background. The audience is asked to join in the chorus.

TANKS (1 reel, 10 minutes) 16 and 35mm, sound (1942)
Graphically describes the manufacture of the M-3 medium tank. Photographed at the Chrysler Detroit Arsenal, Fort Knox, Kentucky, and an unnamed Eastern seaport. "The photography is magnificent, the musical score by Jack Schaindlin forms a meaningful background to the film; and Orson Welles reads a fine script with dramatic excellence. In telling the tale of how the M-

OFFICE OF WAR INFORMATION (Continued)

medium tank is assembled, tested and shipped overseas, all the component factors are fused into an outstanding reel. Exhibitors will find the subject an exciting way of showing how our production plants are forging the 'armament of victory'."--Film Daily.

*TARGET FOR TONIGHT (4 reels, 48 minutes) 16mm, sound
An account of an actual air raid by the Bomber Command of the Royal British Air Force. The picture begins with new aerial photographs of enemy territory brought back by reconnaissance planes. These disclose the objective to be raided. Then comes the staff planning, routine of preparing the bombers, getting weather reports, instructing the crews, and the tension of the evening takeoff. From this point, the camera stays with the big Wellington bomber, named "F for Freddie," and its crew of six. "F for Freddie" reaches its destination, descends to bomb the target amidst a barrage of enemy anti-aircraft fire, and there is a spectacular explosion as the bombs find their mark. Its engine in trouble, its wireless operator wounded, the plane heads for home. The picture ends with the crew's report back to headquarters.

*THE NEW SPIRIT (1 reel, 7 minutes) 16 and 35mm, sound (1942)
A Walt Disney production for the Treasury Department, picturing Donald Duck learning how to help the war effort by paying his income tax.

*WOMEN IN DEFENSE (1 reel, 10 minutes) 16 and 35mm, sound (1942)
This is a topical exposition of the various roles women are assuming in the war effort. Principal sequences show women of science, women in industry, and women in the voluntary services. Commentary written by Mrs. Franklin D. Roosevelt and narrated by Katharine Hepburn.

*Not all distributors listed below have prints of the films so designated. If you are unable to obtain prints from your distributor, please write for information to the Bureau of Motion Pictures, Office of War Information, Washington, D. C.

NOTICE: There will be new films issued to these distributors by the Bureau of Motion Pictures each month.

List of Distributors

Eastern Region

Connecticut
Delaware
Florida
Georgia
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
North Carolina
Pennsylvania
Rhode Island
South Carolina
Vermont
Virginia
Washington, D. C.
West Virginia

University of Connecticut
Audio-Visual Aids Center
Storrs, Connecticut

Milton H. Hill, Inc.
922 Shipley St.
Wilmington, Delaware

Southern 16mm Picture Co.
172 N. E. 96th St.
Miami, Florida

University of Florida
Dept. Audio-Visual Inst.
Gainesville, Florida

Distributors Group Inc.
119 Luckie St., N. W.
Atlanta, Georgia

Russell C. Roshon
Rhodes-Haverty Bldg.
Atlanta, Georgia

Stevens-Ideal Pictures
89 Cone St., N. W.
Atlanta, Georgia

University System of Georgia
Division of General Extension
Atlanta, Georgia

University of Maine
School of Education
Orono, Maine

Boston University
School of Education
Boston, Massachusetts

Cinema, Inc.
234 Clarendon St.
Boston, Massachusetts

Commonwealth of Massachusetts
Department of Education
Boston, Massachusetts

Visual Education Service Inc.
131 Clarendon St.
Boston, Massachusetts

Audio-Film Libraries
661 Bloomfield Ave.
Bloomfield, N. J.

The Princeton Film Center
410 Nassau St.
Princeton, N. J.

Fred S. Buchan
79 Allen Street
Buffalo, New York

Bell and Howell Co.
30 Rockefeller Plaza
New York, New York

Bertram Willoughby Pictures, Inc.
Suite 600
1600 Broadway
New York, New York

Brandon Films, Inc.
1600 Broadway
New York, New York

Commonwealth Pictures Corp.
729 Seventh Avenue
New York, New York

Films Inc.
330 West 42nd Street
New York, New York

Walter O. Gutlohn, Inc.
35 West 45th Street
New York, New York

New York University Film Library
71 Washington Square
New York, New York

Russell C. Roshon
RKO Bldg. - 25th Floor
Radio City
New York, New York

Y.M.C.A. Motion Picture Bureau
347 Madison Avenue
New York, New York

John E. Allen, Inc.
6 George St.,
Rochester, New York

Syracuse University
School of Education
Educational Film Library
Syracuse, New York

Ideal Motion Picture Service
393 St. John's Avenue
Yonkers, New York

National Film Service
120 Salisbury St.
Raleigh, N. C.

University of North Carolina
Extension of Division
Chapel Hill, N. C.

OFFICE OF WAR INFORMATION (Continued)

Kunz Motion Picture Service, Inc.
1319 Vine Street
Philadelphia, Pa.

Russel C. Roshon
Fox Theatre Bldg.
Philadelphia, Pa.

Pennsylvania College for Women
P. C. W. Film Service
Pittsburgh, Pa.

Russell C. Roshon
520 State Theater Bldg.
Pittsburgh, Pa.

Clem Williams Films
403 Diamond Bank Bldg.
Pittsburgh, Pa.

Pennsylvania State College
Audio-Visual Aids
State College, Pa.

University of South Carolina
Extension Division
Columbia, South Carolina

Robert Hull Fleming Museum
University of Vermont
Burlington, Vermont

State Board of Education
Audio-Visual Education
Richmond, Virginia

Bell and Howell Co.
1221 G Street, N. W.
Washington, D. C.

Southern Region

Alabama
Arkansas
Louisiana
Mississippi
New Mexico
Oklahoma
Tennessee
Texas

University of Alabama
Visual Aids
Tuscaloosa, Alabama

Arkansas State Teachers College
Public Relations
Conway, Arkansas

Jasper Ewing & Sons
225 Main St.
Baton Rouge, La.

Harfilms, Inc.
660 Baronne St.
New Orleans, La.

State Department of Education
Baton Rouge, La.

University of New Mexico
Extension Division
Albuquerque, New Mexico

Camera Shoppe
1920 N. Broadway
Oklahoma City, Okla.

Oklahoma Visual Education Co.
1100 N. W. 22nd St.
Oklahoma City, Okla.

University of Oklahoma
Extension Division
Norman, Oklahoma

Ideal Pictures Corp.
18 South Third St.
Memphis, Tennessee

Russell C. Roshon
88 Madison Ave. at Maine
Memphis, Tennessee

University of Tennessee
Extension Division
Knoxville, Tennessee

National Ideal Film Library
2024 Main St.
Dallas, Texas

Russell C. Roshon
Southland Annex
Dallas, Texas

Texas Technological College
Dept. Visual Instruction
Lubbock, Texas

Texas Visual Education Co.
305 West 10th St.
Austin, Texas

University of Texas
Extension Division
Austin, Texas

West Texas State Teachers College
Bureau of Public Service
Canyon, Texas

Y. M. C. A. Motion Picture Bureau
1700 Patterson Ave.
Dallas, Texas

Central Western Region

Illinois
Indiana
Iowa
Kansas
Kentucky
Michigan
Minnesota
Missouri
Nebraska
North Dakota
Ohio
South Dakota
Wisconsin

Bell and Howell Co.
1801-15 Larchmont Ave.
Chicago, Ill.

College Film Center
59 East Van Buren St.
Chicago, Ill.

Films, Inc.
64 East Lake St.
Chicago, Ill.

Ideal Pictures Corp.
28-34 East Eighth St.
Chicago, Ill.

Russell C. Roshon
188 West Randolph St.
Chicago, Ill.

Y. M. C. A. Motion Picture Bureau
19 South LaSalle St.
Chicago, Ill.

University of Illinois
Visual Aid Service
Urbana, Ill.

Burke's Motion Picture Co.
428½ Lincoln Way West
South Bend, Indiana

Dennis Film Bureau
29 East Maple St.
Wabash, Indiana

Indiana University
Extension Division
Bureau of Audio-Visual Aids
Bloomington, Indiana

Eastin 16mm Picture Co.
Davenport, Iowa

Iowa State College
Visual Instruction Service
Ames, Iowa

Pratt Sound Film Service
Cedar Rapids, Iowa

State University of Iowa
Dept. of Visual Instruction
Iowa City, Iowa

Central Visual Education Service
Wichita, Kansas

University of Kansas
Extension Division
Bureau of Visual Instruction
Lawrence, Kansas

INFORMATIONAL (Continued)

OFFICE OF WAR INFORMATION (Continued)

D. T. Davis Co.
231 West Short St.
Lexington, Ky.

University of Kentucky
University Extension
Lexington, Ky.

Cosmopolitan Film Libraries, Inc.
3248 Gratiot Ave.
Detroit, Mich.

W. D. Engleman
701 West Warren St.
Detroit, Mich.

University of Michigan
Bureau of Visual Education
Ann Arbor, Mich.

Elliott Film Service
72 Glenwood Ave.
Minneapolis, Minn.

Film Preview, Inc.
1504 Hennepin Ave.
Minneapolis, Minn.

Russell C. Roshon
535 Andrus Bldg.
Minneapolis, Minn.

University of Minnesota
Extension Division
Minneapolis, Minn.

Kansas City Sound Service Co.
926 McGee St.
Kansas City, Mo.

Pictosound Movie Service
4416 Donovan Ave.
St. Louis, Mo.

Russell C. Roshon
Midland Bldg.
Kansas City, Mo.

Russell C. Roshon
Louderman Bldg.
St. Louis, Mo.

Swank Motion Pictures
620 North Skinker Ave.
St. Louis, Mo.

University of Missouri
University Extension Division
Columbia, Mo.

Modern Sound Pictures, Inc.
1219 Farnum St.
Omaha, Nebraska

University of Nebraska
Extension Division
Department of Audio-Visual Aids
Lincoln, Nebraska

State College Station
State Director of Correspondence
Study
Fargo, North Dakota

Cousino Visual Education Service
2854 Scottwood Ave.
Toledo, Ohio

Escar Motion Picture Service, Inc.
7315 Carnegie Ave.
Cleveland, Ohio

Ohio State Department of Education
Visual Instruction Exchange
Columbus, Ohio

Sun Ray Films Co.
2108 Payne Ave.
Cleveland, Ohio.

Twyman Films, Inc.
29 Central Ave.
Dayton, Ohio

University of South Dakota
Extension Division
Vermillion, South Dakota

Photoart House
844 N. Plankinton Ave.
Milwaukee, Wisconsin

University of Wisconsin
Extension Division
Madison, Wisconsin

Far Western Region

Arizona
California
Colorado
Idaho
Montana
Nevada
Oregon
Utah
Washington
Wyoming

University of Arizona
University Extension Division
Tucson, Arizona

Bell & Howell Co.
716 North LaBrea Ave.
Hollywood, Calif.

William M. Dennis
2506½ W. Seventh St.
Los Angeles, Calif.

Films, Inc.
1709 W. Eighth St.
Los Angeles, Calif.

Ideal Pictures Corp.
2408 W. Seventh St.
Los Angeles, Calif.

Photo and Sound, Inc.
153 Kearney St.
San Francisco, Calif.

University of California
Extension Division
Berkeley, Calif.

Y. M. C. A. Motion Picture Bureau
351 Turk St.
San Francisco, Calif.

Akin and Bagshaw, Inc.
1425 Williams St.
Denver, Colorado

Ideal Pictures Corp.
7 Coors Bldg.
Littleton, Colorado

University of Colorado
Extension Division
Boulder, Colorado

University of Idaho
University Extension Service
Boise, Idaho

Campbell Films
Manhattan, Montana

State Department of Visual
Education
Helena, Montana

Films, Inc.
314 S. W. Ninth Ave.
Portland, Oregon

Ideal-Owens Pictures
Drawer H
Portland, Oregon

Oregon State System of Higher
Education
Dept. of Visual Instruction
Corvallis, Oregon

Brigham Young University
Extension Division
Provo, Utah

State College of Washington
Division of General Extension
Pullman, Washington

University of Wyoming
Director of Correspondence Study
Laramie, Wyoming

LIST OF 16 MILLIMETER SOUND and SILENT MOTION PICTURE FILMS

WOMEN'S BUREAU
FEB 28 1944
DEPARTMENT OF LABOR

1942-1944

(Effective until June 30, 1944)

For Use In

ELEMENTARY SCHOOLS

and

JUNIOR, ACADEMIC AND VOCATIONAL HIGH SCHOOLS

BOARD OF EDUCATION
of The City of New York

Particular Attention is Called To

Instructions .... Front Inside Cover
Index .... Page I
Table of Contractors .... Page II

This List Includes All Titles on Lists Approved
By the Board of Education on May 27, 1942
and June 10, 1942

[illegible]

[illegible] — [illegible] — M[illegible]

Mrs. John Parker Van Zandt

[illegible] —

[illegible] —

[illegible] — Women Work for Victory —

The Westchester

INSTRUCTIONS TO APPEAR IN LIST OF MOVING PICTURE FILMS
1942 - 1944

TO SUPERINTENDENTS, DIRECTORS, SUPERVISORS, AND PRINCIPALS, ET AL.

Ladies and Gentlemen:

This is a catalogue of approved films to be used for the development of film libraries. For the elementary schools this is to guide principals in making recommendations to their Assistant Supermtendents for further development of district film libraries. Such recommendations will guide the Bureau of Visual Instruction in its purchases.

Secondary schools may also make their selections from this list according to the rules and regulations of each division.

1. Items bearing the reference "**" have been awarded by the Board of Education. These are the only titles available for purchase at present, the cost of which is to be charged against funds under control of the Board of Education.

2. The school level is indicated alongside of each title by the following code letters:

"E" .... Elemetary School Grades
"J" .... Junior High School Grades
"A" .... Academic High Schools
"V" .... Vocational High Schools

The films as classified merely indicate the school level for which they are most suitable. However, it is not intended to restrict their use to any particular school level, grade or subject.

3. At the right hand side of each page in this list, following the price, there is a column of numbers headed with an asterisk (*). This column contains the producer's reference number. The producer's and vendor's name may be ascertained by consulting the "Table of Contractors' Names and Reference Numbers" on Page II.

4. Requisitions once filed shall be considered as open requisitions until they are either filled or conceled. Items shall not be re-requisitioned on the assumption that a previous requisition will not be filled.

5. Requisitions are numbered in sequence; therefore, if a requisition is canceled or destroyed, a notice of cancellation shall be attached to the next following requisition.

6. Requisitions shall be filed in accordance with instructions issued by the Superintendent of School Supplies.

7. Superintendents are requested to ascertain if there is a surplus of any item requisitioned, in the schools under their jurisdiction, which may be used in other schools, thereby eliminating the necessity of ordering such items.

8. Principals are urged not to request nor to accept any teaching materials from any contractor until an official order has been issued to the contractor by the Superintendent of School Supplies.

Kindly re-read the foregoing instructions and re-check requisitions before forwarding.

G. L. GRAEF,
Superintendent of School Supplies.

APPROVED:
Nickolaus Engelhardt,
Associate Superintendent.
(January 14, 1943)

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ELEMENTARY SCHOOLS

AND

JUNIOR, ACADEMIC AND VOCATIONAL HIGH SCHOOLS

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SPECIAL NOTES

The school level is indicated by code letters as follows:

"E"—Elementary School Grades
"J"—Junior High School Grades
"A"—Academic School Grades
"V"—Vocational School Grades

**—Titles bearing this reference mark have been awarded by the Board of Education and are the only titles available for purchase at present, the cost of which is to be charged against funds under control of the Board of Education.

Table of Producers' and Vendors' Names with Reference Numbers

(Note: Unless a vendor's name is specified, the producer is also the vendor.)

SOUND FILMS

No.	Producer and Vendor
1	Bell & Howell Co.; vendor, Colarn Furniture & Equipment Co.
2	Brandon Films, Inc.
3	Bray Pictures Corp.
4	Castle Films; vendor, Rabson's, Inc.
6	Commonwealth Pictures Corp.
7	Coronet Productions
8	De Luxe Laboratories, Inc.
9	Doran, John T.
10	Edited Pictures System
11	Erpi Classroom Films, Inc.
12	Films, Inc.
13	Finer Films
14	Frith Films
15	Garrison Films
16	Gordon Pictures
17	Gutlohn, Walter O., Inc.
18	Hoffberg Productions, Inc.
19	Forum Films, Inc., Vendor, Ideal Motion Picture Service
20	Ideal Pictures
21	Inter. Geog. Pictures
22	Jam Handy Pictures Service, Inc.
23	Knowledge Builders
24	National Motion Picture Co.
25	National Screen Service Corp.
26	N. Y. Tuberculosis & Health Ass'n.
27	Non-Theatrical Pictures Corp.
28	Seven Seas Film Corp.
29	Skibo Productions, Inc.
30	Sound Masters
31	Teaching Film Custodians, Inc.
32	U. S. Dept. of Agriculture, Vendor, De Luxe Laboratories
33	U. S. Office of Education; vendor, Castle Films, Inc.
34	Veregraph Film Crop.; vendor, Nu-Art Films, Inc.
35	Visual Library
36	Vocational Guidance Films, Inc.
37	Eastman Kodak Co., Teaching Films Div.

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SILENT FILMS

No.	Producer and Vendor
38	Associated Film Editors
39	Barkley, Robert L.
40	Belden, Charles J.
41	Bell & Howell; vendor, Colarn Furniture & Equipment Co.
42	Bowmar, Stanley Co.
43	Boyd, Rutherford
44	Brandon Films, Inc.
45	Bray Pictures Corporation
46	Carter Cinema Producing Corp.
47	Castle Films; vendor, Rabson's, Inc.
48	Church, Frank R.
49	Cinegraphic Company
51	Dellar, Clara
52	De Luxe Laboratories, Inc.
53	Dudley, Wm. H.
54	Eastman Kodak Co., Teaching Films Division
55	Edited Pictures System
56	Educational Film Service
57	Edwards, H. T.
58	Eye Gate House
59	Films, Inc.
60	Films of Commerce Co.
61	Frith Films
62	Garrison Films
63	Gutlohn, Walter O., Inc.
64	Harmon Foundation, Inc.
65	Instructional Films
66	Knowledge Builders
67	Kohs, Lester H.
68	Locke, Chas. E., Sec'y., Alumni Ass'n. of Mass. Inst. of Tech.
69	Medical Film Guild
70	Official Films, Inc., vendor, Rabson, Inc.
71	Rurinton Pictures
72	Rabson's, Inc.
73	Robinson Music
74	Randle, Dorothy D, Tennis Club
75	Sazan, Henry
76	Sibley, Ruroy
77	Spaco, Kenneth F.
78	U. S. Dept. of Agriculture
79	Department of Labor
80	Veregraph Film Corporation
81	Yale University Press Film Service, Inc.

1942 - 1944

LIST OF 16 MILLIMETER MOTION PICTURE FILMS
FOR THE ELEMENTARY SCHOOLS
AND
JUNIOR, ACADEMIC AND VOCATIONAL HIGH SCHOOLS

The unit of purchase is "each" unless otherwise specified.

SECTION 1
SOUND FILMS

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
1	Adventures of Bunny Rabbit	1	352	Nature Study	E	45.00	11
2	**Aerodynamics—Probelms of Flight	1	376	Aviation Science	V	45.00	11
3	**Aerodynamics—Theory of Flight	1	392	Aviation Science	V	45.00	11
4	Air for G String	1	325	Music	A	27.00	17
5	Aircraft Design	1	423	Aviation	V	45.00	35
6	Allen De El Rio Grande	1	353	Spanish	A	23.33	18
7	An Airplane Trip	1	396	Geography	E	45.00	11
8	Angel of Mercy	1	380	History	J	30.00	31
9	Animal Cunning	1	344	Biology	A	30.00	31
10	Animals in Modern Life	1	380	Econ. Geog.	A	45.00	11
11	Animals of the Rocky Shore	1	350	Biology	A	45.00	35
12	Ants	1	370	Nature Study	E	45.00	9
13	Aphids	1	414	Science	A	45.00	11
14	The Archives	1	349	History	J	30.00	31
15	Argentina	1	396	Geography	E	45.00	11
16	Around the Corner	1		Gen. Sci.	A	36.00	22
17	Arteries of the City	1	402	Civics	A	45.00	11
18	Arts and Crafts of Mexico	1	395	Art	A	45.00	11
19	Australian Cities & Industries	1	400	Geo. Soc. Stu.	J	36.00	1
20	**Automotive Service	1	399	Shop	V	45.00	36
21	A Backward Civilization	2	768	Geography	E	76.50	11
22	Bar Folder	1	400	Sheet Metal	V	21.50	30
23	Beetles	1	371	Gen. Science	J	45.00	11
24	Behind the Shadows	1	400	Health	A	12.00	26
25	Bermuda	1	378	Geography	E	30.00	31
26	Berth of a Queen	1	391	Social Studies	J	30.00	31
27	Bill of Rights	2	622	History	J	83.33	31
28	Birthplace of Icebergs	1	389	Geography	E	30.00	31
29	Black Bear Twins	1	386	Nature Study	E	45.00	11
30	A Boat Trip	1	380	Social Studies	E	45.00	11
31	Born to Die	1	329	Nature Study	J	24.00	29
32	The Boss Didn't Say Good Morning	1	379	Charac. Train.	J	30.00	31
33	Boys of Atitlan	1	419	Geography	E	27.00	17
34	The Brass Choir	1	382	Music	J	45.00	11
35	Brazil	1	394	Geography	E	45.00	11
36	The Builders	1	726	Eco. Citizenship	A	85.00	11
37	Butterflies	1	320	Nature Study	E	45.00	9
38	Butterflies	1	392	Biology	A	45.00	11
39	The Cabbage	1	336	Biology	A	45.00	35

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
40	The Cattlemen	1	391	Geography	J	45.00	11
41	**Chemistry in a Changing World	1	388	Chemistry	A	45.00	11
42	Children of China	1	398	Geography	E	45.00	11
43	Children of Holland	1	387	Geography	E	45.00	11
44	Chile	1	388	Economic Geog.	A	45.00	11
45	Choosing Your Vocation	1	402	Soc. Stu. Guid.	A	45.00	11
46	City Water Supply	1	393	Science & Civics	J	45.00	11
47	City of Wax	1	329	Nature Study	E	24.00	29
48	Coal	2	633	Social Studies	A	90.00	35
49	Colonial Children	1	394	History	E	45.00	11
50	Colorful Jaipur	1	312	Geography	J	29.93	16
51	Conquest of the Air	5	1600	Social Science	I	225.00	12
52	Conservation of National Resources	1	389	Eco. Geog.	J	45.00	11
53	The Corn Farmer	1	385	Geo. Gen. Sci.	J	45.00	11
54	Control of Body Temperature	1	392	Health Edu.	J	45.00	11
55	Cony	1	400	Geography	E	40.00	1
56	Coolidge String Quartet	1	360	Music	J.	60.00	17
57	Cornice Brake	2		Sheet Metal	V	43.00	30
58	Courtesy Comes to Town	2		Charc. Train.	A	100.00	19
59	Current Flashes	1		Gen. Science	A	36.00	22
60	Damrosch, Walter	1	386	Music	J	27.00	17
61	Declaration of Indenpendence	2	674	History	E	83.33	31
62	Desert Demons	1	310	Geo. Science	J	30.00	31
63	Development of English Railways	1	334	Eco. Mod. E. Hist.	A	45.00	35
64	Development of Transportation	1	402	Civics	J	45.00	11
65	Dies and Die Making	2	728	Machine Shop	V	100.00	28
66	Distant Races	1	365	Social Studies	J	45.00	11
67	**Distributing Heat Energy	1	394	Science Physics	J	45.00	11
68	Dog Days	1	310	Nature Study	E	24.00	29
69	Early Settlers of New England	1	398	Social Studies	E	45.00	11
70	Earth in Motion	1	414	Geography	J	45.00	11
71	Earth and Its Seasons	1		Geog. Sci. Phys.	J	36.00	27
72	The Earth's Rocky Crust	1	359	Physiography	J	45.00	11
73	**Electrochemistry	1	388	Chem. Physics	A	45.00	11
74	**Electrodynamics	1	384	Science	J	45.00	11
75	**Elementary Operations of the Engine Lathe Reel II	1	399	Engine Lathe	V	36.00	37
76	Elephant Round Up	1	350	Geo. Nat. Stu.	E	12.60	4
77	**Energy & Its Transformation	1	382	Physics	J	45.00	11
78	Erosion by Wind & Water	1	400	Physio. Sci.	A	30.00	10
79	Eskimo Trail	1	326	Geography	E	30.00	31
80	Exotic Egypt	1	351	Social Studies	J	12.60	4
81	Farm Animals	1	404	Nature Study	E	45.00	11
82	Feuermann, Emanuel	1	281	Music	J	60.00	17
83	The Fifty Year Barter	1	350	Social Studies	E	30.00	31
84	Filming the Fleet	1	357	Civics	J	30.00	31
85	Filming Nature's Wonders	1	329	Gen. Science	A	30.00	31

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
86	Finding Your Life's Work	2	745	Guidance	V-J	90.00	36
87	The Fireman	1	389	Civics	E	45.00	11
88	First Aid	1	400	Health	A	45.00	11
89	Fishes	1	350	Nature Study	E	45.00	9
90	Flags on Duty	1	400	Civics	J	59.00	14
91	Flowers at Work	1	389	Biology	A	45.00	11
92	Forgotten Victory	1	397	Social Studies	J	30.00	31
93	Free Air	1		Gen. Sci. Chem.	A	36.00	22
94	Fuels and Heat	1	395	Physics	J	45.00	11
95	Furniture Craftsman	1	395	Guidance	V-J	45.00	11
96	Geological Work of Ice	1	398	Physiography	J	45.00	11
97	Giant of Norway	1	391	Social Studies	J	30.00	31
98	Give Me Liberty or Give Me Death	2	772	Social Studies	A	83.33	31
99	Goats	1	376	Nature Study	E	45.00	11
100	Good Neighbors	1	386	Geography	J	30.00	31
101	Grey Owls Little Brother	1	388	Nature Study	E	24.00	29
102	Gray Squirrel	1	391	Nature Study	E	45.00	11
103	Grinding Practice	1	398	Machine Shop	V	50.00	28
104	Ground Water	1	388	Physiography	J	45.00	11
105	Haiti's Black Napoleon	1	368	Social Studies	A	30.00	31
106	Hand Methods of Forming Sheet Metals	2		Sheet Metals	V	44.00	30
107	The Harbor	1	400	Geography	J	36.00	1
108	Highlights of Lincoln's Career	1	395	History	E	45.00	34
109	Home Nursing	1	400	Home Nursing	J	45.00	11
110	The Honey Bee	1	391	Nature Study	E	45.00	11
111	Horned Owl, Biography of the	1	400	Nature Study	E	40.00	1
112	**Horse Power	1		Phys. Gen. Sci.	A	36.00	22
113	**Hot Head	1		Gen. Science	A	36.00	22
114	The House Fly	1	373	Nat. Stu. Sci.	E	45.00	11
115	How the Eye Functions	1	400	Health Edu .	J	34.00	23
116	How Nature Protects Animals	1	380	General Science	A	45.00	11
117	How to Ski	1	396	Health Edu.	A	24.00	29
118	How We Hear	1	400	Bio. Gen. Sci. Health Ed.	A	39.95	23
119	How We See	1	400	Bio. Gen. Sci. Health Ed.	A	39.95	23
120	Iceberg Patrol	1	340	Civics Geog.	J	30.00	31
121	Iceless Artic	1	387	Geography	E	30.00	31
122	Igor Gorin	1	207	Music	J	60.00	17
123	In All His Glory	1	390	Science	J	36.00	17
124	In Every Day	1	360	Health Ed.	E	40.00	13
125	In Nature's Workshop	1	340	Chemistry	J	36.00	3
126	Inside the Capitol	1	358	Civics	J	30.00	31
127	Inside the Library of Congress	1	381	Civics Art	J	30.00	31
128	Smithsonian Institute	1	374	Civics Science	J	30.00	31
129	Inside the White House	1	394	History Geog.	J	30.00	31
130	Irrigation Farming	1	383	Geog. Science	J	45.00	11
131	Islands of West Indies	1	378	Geography	E	30.00	31

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
132	Isles of the East	1	327	Geography	J	30.00	31
133	I Want a Job	2	780	Guidance	V-A	100.00	19
134	Jigs and Fixtures	1	395	Machine Shop	V	50.00	28
135	Jose Iturbi #1 (Piano)	1	343	Music	J	60.00	17
136	Jose Iturbi #2 (Hapsichord)	1	407	Music	J	60.00	17
137	Journalism	1	399	Guidance	V-J	45.00	36
138	Jumps and Pole Vault	1	410	Health Ed. Art	A	45.00	11
139	Kentucky Pioneer	1	396	Social Science	E	45.00	11
140	Killers	1	354	Biology	A	30.00	31
141	Krakatoa	3	944	Geography	J	90.00	31
142	Land of the Bengal	1	348	Eco. Geog.	A	30.00	31
143	Land of Ghengis Khan	1	368	Geography	J	30.00	31
144	Land of the Incas	1	350	Geography	E	12.60	4
145	Land of the Maharajahs	1	342	Geography	J	29.93	16
146	Land of the Maple Leaf	1	358	Geography	J	30.00	31
147	Land of Mexico	1	388	Geography	E	45.00	11
148	Land of Shalimar	2	665	Geography	J	75.00	6
149	Leaves	1	396	Biology	E	45.00	11
150	Life of a Healthy Child	1	400	Health Edu.	J	36.00	1
151	Lincoln in the White House	2	775	History	E	83.33	31
152	**The Machine Maker	1	386	Mch. Shop Gd.	J	45.00	11
153	Machine Methods of Forming Sheet Metals	2		Machine Shop	V	43.00	30
154	Manhattan Waterfront	1	385	Geography	J	27.00	17
155	Manila	1	402	Geography	E	25.00	34
156	Man's Greatest Friend	1	374	History Nature Study Science	J	30.00	31
157	Man Without a Country	2	799	Literature	J	83.33	31
158	Marionettes	1	400	Art	E	40.00	1
159	Mediaeval Village	2	828	Mod. History	A	90.00	35
160	Mediterranean Milestones	1	362	Geography	J	27.00	17
161	Metal Craft	1	392	Metal Craft	J	45.00	11
162	Metal Cutting Principles	2	694	Machine Shop	V	100.00	28
163	Mexican Children	1	393	Geography	E	45.00	11
164	Mexican Mural	1	341	Geography	A	30.00	31
165	Michigan Beaver	1		Nat. Study	J	27.00	17
166	Mildred Dilling	1	343	Music	J	60.00	17
167	Millling Machine Operation	2	775	Machine Shop	V	100.00	28
168	Minutes Are Pennies	2	780	Guidance	A-V	100.00	19
169	Modern Lithographer	1	388	Guidance	V	45.00	11
170	**Molecular Theory of Matter	1	386	Chem. Physics	A	45.00	11
171	Monroe Doctrine	2	591	History	E	83.33	31
172	The Moon	1	390	Nat. St. Sci.	E	45.00	11
173	Moths	1	383	Nat. St. Sci	A	45.00	11
174	Mountain Building	1	382	Physiography	J	45.00	11
175	Mysteries of Water	1	397	Sci. Geog.	J	36.00	27
176	Mystic India	1	350	Geo. Soc. Stu.	J	12.60	4
177	Nature's Songsters	1	312	Nature Study	E	24.00	29

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
178	Navajo Children	1	403	Geography	E	45.00	11
179	Navajo Indians	1	388	Geography	E	45.00	11
180	Net Fishers of Patzcuano	1	387	Geography	E	27.00	17
181	New England Fisherman	1	396	Geography	J	45.00	11
182	New Horizons—Alaska	1	291	History Geo.	J	30.00	31
183	New Zealand—White Man's Paradise	1	299	Geography	J	29.93	16
184	Not So Dumb	1	332	Nature Study	E	24.00	29
185	Ocean to Ocean	1	378	Geography	E	31.50	6
186	Old Glory	1	392	Social Studies	E	41.67	31
187	Old Hickory	2	625	Hist. Soc. Stu.	E	83.33	31
188	On the Air	1		Gen. Science	A	36.50	22
189	One Against the World	1	394	Science	A	30.00	31
190	One Day Stand	1	341	Geography	J	30.00	31
191	One Thousand Hours	1		Gen. Science	A	36.50	22
192	The Orange Grower	1	394	Geography	E	45.00	11
193	Our Teeth	1	400	Health Ed.	J	34.00	23
194	**Oxidation and Reduction	1	384	Chemistry	A	45.00	11
195	Palestine	1	352	Geography	J	12.60	4
196	The Passenger Train	1	388	Social Studies	E	45.00	11
197	Peat and Coal	1	400	Geog. Soc. Stu.	J	30.00	10
198	People of the Congo	1	398	Geography	J	45.00	11
199	People of Hawaii	1	382	Social Studies	E	45.00	11
200	People of Mexico	1	392	Social Studies	E	45.00	11
201	People of Western China	1	387	Geography	J	45.00	11
202	The Percussion Group	1	380	Music	J	45.00	11
203	The Perfect Tribute	2	706	History	J	60.00	31
204	Peru	1	399	Social Studies	E	45.00	11
205	Pirate Isles	1	357	Geography	E	30.00	31
206	Planer and Shaper Operation	1	372	Machine Shop	V	50.00	28
207	A Planter of Colonial Virginia	1	394	History	E	45.00	11
208	Plastic Art	1	396	Manual Art	J	45.00	11
209	Playtime at the Zoo	1	368	Nature Study	E	36.00	17
210	Pledge of Allegiance	1	68	Civics	J	2.75	25
211	Plow that Broke the Plains	3		Social Science	A	15.00	32
212	Pneumonia	1	400	Health Ed.	A	45.00	11
213	Policeman	1	391	Social Studies	E	45.00	11
214	Pollination	1	380	Biology	A	45.00	35
215	Pond Insects	1	396	Nature Study	E	45.00	11
216	Pottery Making	1	386	Manual Art	J	45.00	11
217	Poultry on the Farm	1	394	Nature Study	E	45.00	11
218	Power	1		Gen. Sci. Phys.	A	36.00	22
219	Precision Layout and Measuring	1	387	Machine Shop	V	50.00	28
220	The Private Life of the Gannets	1	394	Biology	A	24.00	29
221	Properties of Water	1	400	Science	J	36.00	7
222	Prophet Without Honor	1	399	Geog. History	J	30.00	31
223	Province of Quebec	1	348	Geography	E	30.00	31
224	Puerto Rico	1	400	Geography	J	36.00	1

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
225	Radio and Television	1	399	Occupation Sci.	J-V	45.00	36
226	Rainbow Pass	1	392	Geography	J	30.00	31
227	Reaction in Plants and Animals	1	402	Biology	A	45.00	11
228	Recording Modern Science	1	367	Gen. Science	A	30.00	31
229	Return of the Buffalo	1	360	History	E	24.00	29
230	Rhythm in Light	1	179	Art	A	31.50	6
231	Rio De Janeiro	1	377	Geography	E	17.50	34
232	Rio the Magnificient	1	291	Geography	E	29.93	16
233	The River	3		Soc. Stu.	A	15.00	32
234	Road to Health & Happiness	1	400	Health	V	36.00	1
235	Robin Redbreast	1	391	Nature Study	E	45.00	11
236	Robinson Crusoe	3	1215	Literature	E	112.50	6
237	Rock of Gibraltar	1	339	Geography	E	30.00	31
238	Romance of Louisiana	2	680	Soc. Sci.	E	83.33	31
239	Romance of Radium	1	356	Gen. Sci.	A	30.00	31
240	Roots	1	415	Biology	A	45.00	35
241	Rotary Machines	2		Sheet Metal	V	49.00	30
242	Safety in the Home	1	373	Sci. Homem'k'g	J	45.00	11
243	Sampans and Shadows	1	358	Geography	J	30.00	31
244	Sand Hogs	1	362	Civ. Eco. Geog.	A	30.00	31
245	Science and Agriculture	1	392	Eco. Geog.	A	45.00	11
246	Seasons and their Causes	1	332	Geography	J	27.00	17
247	Seed Dispersal	1	400	Gen. Science	J	45.00	11
248	Servant of the People	2	764	Social Science	A	60.00	31
249	Shell Fishing	1	392	Geography	E	45.00	11
250	Shelter	1	392	Geography	E	45.00	11
251	Shep-The Farm Dog	1	388	Nat. Stu. Soc. Stu.	E	45.00	11
252	Short Eared Owl	1	337	Biology	A	36.00	17
253	Shrinking and Stretching of Angles	2		Machine Shop	V	35.00	30
254	Simple Block Printing	1	400	Art	J	40.00	1
255	Ski Flight	1	367	Health Ed.	A	30.00	31
256	The Smiles Have It	1	400	Health Edu.	E	40.00	13
257	Snapping Turtle	1	387	Nature Study	E	45.00	11
258	Solar Family	1	388	Geography	J	45.00	11
259	Song Birds of the North Woods	1	376	Nature Study	E	24.00	29
260	Sons of Liberty	2	761	History	J	83.33	31
261	Song of a Nation	2	686	Soc. Sci. His.	E	83.33	31
262	**Sound Waves and Their Sources	1	410	Physics	A	45.00	11
263	Special Messenger	1	399	Biology	A	36.00	17
264	**Spiders	1	395	Nat. St. Science	E	45.00	11
265	Spinning Levers	1		Gen. Sci. Phys.	A	36.00	22
266	Sports Immortals	1	383	Health Ed.	A	30.00	31
267	Spotlight on Indo-China	1	334	Geography	J	30.00	31
268	Spotted Wings	1	250	Biology	A	45.00	1
269	Spotted Wings	1	300	Biology	A	27.00	15
270	Story of Dr. Carver	1	358	History	E	30.00	31
271	Story of Elias Howe	1	336	Soc. Sci.	E	30.00	31

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
272	Story of Dr. Jenner	1	382	Biology Hygiene	A	30.00	31
273	The Story of Our Flag	1	408	History	E	36.00	27
274	Story That Couldn't Be Printed	1	389	History Civics	J	30.00	31
275	The String Choir	1	405	Music	J	45.00	11
276	The Symphony Orchestra	1	378	Mus. Symphony	J	45.00	11
277	Table Tennis	1	358	Health Ed.	A	30.00	31
278	Teddy Bears at Play	½	250	Nature Study	E	15.00	1
279	Tennis Tactics	1	386	Health Ed.	A	30.00	31
280	Territorial Expansion of U. S. 1783-1853	2	837	Soc. Sci.	E	72.00	21
281	Textiles	1	357	Eco. Geog.	A	45.00	35
282	**Thermodynamics	1	394	Phys. Science	J	45.00	11
283	This Spanish Speaking World	1	400	Spanish	A	40.00	1
284	Three Little Kittens	1	397	Nature Study	E	45.00	11
285	Told by a Tooth	1	400	Health Ed.	E	40.00	24
286	Touring Brazil	1	356	Geography	E	30.00	31
287	Truck Farmer	1	394	Geo. Far. Irr.	J	45.00	11
288	U. S. Coast Guard Academy	2	842	Voc. Guid. Civ.	J	72.00	3
289	U. S. Treasury	1	352	Civics	J	30.00	31
290	The Value of a Smile	1	400	Health. Ed.	E	40.00	13
291	Vim, Vigor and Vitamins	1	360	Health Ed.	E	40.00	13
292	Volcanoes in Action	1	390	Physiography	J	45.00	11
293	Volley Ball for Boys	1	400	Health Ed.	A	36.00	7
294	Vronsky & Babin #1	1	290	Music	J	60.00	17
295	Vronsky & Babin #2	1	373	Music	J	60.00	17
296	War in the Trees	1	348	Biology	A	36.00	17
297	Washington	1	354	Geography	E	12.60	4
298	Washington, D. C.	1	387	His. Geog.	J	30.00	31
299	Water Folk	1	340	Biology	A	36.00	17
300	Water Power	1	404	Gen. Science	E	45.00	11
301	Watussi of Africa	1	386	Geography	J	45.00	11
302	A Way in the Wilderness	1	359	Health Ed.	A	30.00	11
303	Weather Wizards	1	328	Gen. Science	A	30.00	31
304	We Live in Two Worlds	1	394	Geo. Eur. Hist.	A	30.00	31
305	Western Grandeur	1	342	Geography	E	30.00	31
306	The Wheat Farmer	1	401	Geography	J	45.00	11
307	Winged Pageantry	1	362	Nat. Study	E	36.00	17
308	The Woodwind Choir	1	409	Music	J	45.00	11
309	The Woodworker	1	399	Occupations	J-V	45.00	36
310	Work of the Rivers	1	378	Physiography	J	45.00	11
311	The Work of Running Water	1	406	Physiography	J	45.00	11
312	Workshops of Old Mexico	1	388	Geography	E	27.00	17
313	Young America Flies	2	812	Guid. Aviation	A	60.00	31
314	Youth Takes to Wings	4	1774	Aviation	A	225.00	3
315	Zapotecoan Potters	1	397	Geography	E	27.00	17

****Awarded by Board of Education**

UNITED STATES OFFICE OF EDUCATION

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
316	**Drilling and Tapping a Cast Steel Valve Body		700	Machine Shop	V	15.94	33
317	**Drilling to a Layout and Spot-facing a Cast Iron Valve Body		550	Machine Shop	V	1294	33
318	**The Engine Lathe	5	2300	Machine Shop	V	51.08	33

Item No.	Title	Length in Ft.	Price	*
319	a) **Rough Turning Between Centers	550	12.94	33
320	b) **Turning Work of Two Diameters	500	11.94	33
321	c) **Cutting a Taper with the Compound Rest and with the Taper Attachment	400	8.40	33
322	d) **Drilling, Boring and Reaming Work Held in Chuck	400	8.40	33
323	e) **Cutting an External National Fine Thread	450	9.40	33

(Prints can be purchased separately)

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
324	**Milling Machine	5	3325	Machine Shop	V	76.38	33

Item No.	Title	Length in Ft.	Price	*
325	a) **The Milling Machine	275	5.90	33
326	b) **Cutting Keyways	525	12.44	33
327	c) **Straddle and Surface Milling to Close Tolerances	975	22.30	33
328	d) **Straddle Milling	625	14.44	33
329	e) **Plain Indexing and Cutting a Spur Gear	925	21.30	33

(Prints can be purchased separately)

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
330	**Precision Measurement	5	2700	Machine Shop	V	63.66	33

Item No.	Title	Length in Ft.	Price	*
331	a) **The Steel Rule	475	11.94	33
332	b) **The Micrometer	525	12.94	33
333	c) **Fixed Gages	600	13.94	33
334	d) **Vernier Scale	675	15.44	33
335	e) **Height Gages and Standard Indicators	425	9.40	33

(Prints can be purchased separately)

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
336	**Vertical Boring Mill	3	3050	Machine Shop	V	68.54	33

Item No.	Title	Length in Ft.	Price	*
337	a) **Rough Facing, Turning, and Drilling on the Verticle Turret Lathe	1125	25.30	33
338	b) **Rough Facing, Boring and Turning a Shoulder on a Verticle Turret Lathe	800	17.94	33
339	c) **Facing, Turning, Boring, Grooving, Chamfering on a Verticle Turret Lathe Using Two Heads	1125	25.30	33

(Prints can be purchased separately)

SECTION 2 — SILENT FILMS

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
500	Adventures of Peter	¾		Nature Study	E	18.00	54
501	African Wild Game No. 1	1	350	Geography	J	24.00	63
502	African Wild Game No. 2	1	295	Geography	J	24.00	63

**Awarded by Board of Education

Item No.	Title	*No. of Reels	Length in Ft.	Subject	School Level	Price	*
503	**Airplane Welding	2	768	Aviation	V	48.00	63
504	**Airplane Riveting	2	685	Aviation	V	48.00	63
505	**Airplane Sheet Metal Work	2	836	Aviation	V	48.00	63
506	Alaska	1		Geography	E	24.00	54
507	Alaska & Eskimos	¼	100	Geography	E	6.00	55
508	Along the Alaskan Coast Line	1	400	Geography	E	20.00	48
509	**Aluminum	1	391	Applied Science	V	24.00	54
510	Amazon	¼		Geography	E	6.00	55
511	Amblystoma	1	400	Biology	A	31.50	65

AMERICAN INDIAN SERIES

Item No.	Title	*No. of Reels	Length in Ft.	Subject	School Level	Price	*
512	**Arts and Crafts	1	400	History	J	26.50	64
513	**Child Life	1	405	Geography	E	26.50	64
514	Government Education	1	392	History	J	26.50	64
515	Gov't Service and Its Problems	1	389	History	J	26.50	64
516	His Contributions to Modern Civilization	1	398	History	J	26.50	64
517	How He Earns a Living	1	360	History	J	26.50	64
518	Looking Forward	1	372	History	J	26.50	64
519	Survivals of Primitive Life	1	398	History	E	26.50	64
520	America's High Spots	1	360	Geography	E	6.30	47
521	America's Oldest Inhabitants	¾	266	History	J	14.36	45
522	America's Polar Triumph (Comdr. Byrd)	2	788	Geography	J	28.80	60
523	Andes & Pampas	¼	100	Geography	E	6.00	55
524	Andes and Pampas (with captions)	½	200	Nature Study	E	12.00	55
525	Animals of the Cat Tribe	½		Nature Study	E	12.00	54
526	Ant Lion	¾	262	Gen. Science	J	30.00	63
527	Ants, Nature's Craftsmen	1		Nature Study	E	14.40	60
528	The Arid Southwest	1		Geography	E	24.00	54
529	Arthur and Dad Come Home by Train	1	325	Mathematics	J	19.20	60
530	Arthur Takes a Trip with Dad	2	700	Mathematics	J	38.40	60
531	**Astronomy	4	1600	Gen. Science	A	102.00	76
532	Atlantic Coast	¼	100	Geography	E	6.00	55
533	Atlantic Coast (with captions)	½	200	Geography	E	12.00	55
534	Atmospheric Pressure	1		Gen. Science	J	24.00	54
535	Baby Bears	1		Nature Study	E	14.68	45
536	Bacteria	¾		Health Ed. Biol.	A	18.00	54
537	Baseball	1	360	Health Ed.	A	8.75	47
538	Battle of Plants	¾	276	Gen. Science	J	30.00	63
539	Bears	¼		Nature Study	E	6.00	54
540	Beavers	1		Nature Study	E	24.00	54
541	Beet and Cane Sugar	1		Geo. App. Chem.	E-A	24.00	54
542	**Behavior of Light	1	400	Physics	A	24.00	54
543	**Bicycling with Complete Safety	1	325	Health Ed.	E	18.00	60
544	Bird Homes	1		Nature Study	E	24.00	54

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
545	Birds of Prey	1		Nature Study	E	24.00	54
546	Birds of the Seacoast	1		Nature Study	E	24.00	54
547	Bituminous Coal	1	400	Chemistry	A	24.00	54
548	**Black Necked Stilt	⅝	300	(col.) Par. Care	A	30.00	54
549	Blood	¾	300	Biology	A	18.00	54
550	Blue Fly	½	201	Nature Study	E	18.00	80
551	Boats and Fishermen of the Tropics	1		Geography	E	14.40	60
552	Boats of the Great Lakes	1	400	Geography	E	25.00	56
553	Bobbie's Dream	1	400	Nature Study	E	24.50	51
554	Body Framework	1	400	Biology	A	24.00	54
555	**Brazil	1 ¼	445	Geography	E	26.50	64
556	Breathing	1	400	Biology	A	24.00	54
557	Burbank, Luther	¾	300	Biology	A	18.00	54
558	Canada's High Spots	1	360	Geography	E	6.30	47
559	Canada	¼	100	Geography	E	6.00	55
560	**Carburetor	1		Auto. Mech.	V	21.60	45
561	Care of the Teeth	1	400	Health Ed.	A	24.00	54
562	Carnivorous Plants	¼	98	Nature Study	E	5.29	45
563	Cats and Kittens	½	182	Nature Study	E	12.00	39
564	Cattle	1		Geography	E	24.00	54
565	Central America	1		Geography	E	24.00	54
566	Ceramics	2	814	Ind. Art	J	53.00	64
567	Championship Basketball	1	360	Health Ed.	A	6.50	70
568	Charles Dickens	1	400	Literature	J	24.50	51
569	Cheeka's Canoe	1	343	History	E	35.00	57
570	Cheeka and the Caribou	1	417	History	E	35.00	57
571	Cheeka's Home	1	425	History	E	35.00	57
572	Child Care—Bathing the Infant	1	400	Health Ed.	A	24.00	54
573	Child Care—Feeding the Infant	1	400	Health Ed.	A	24.00	54

THE CHRONICLES OF AMERICA PHOTOPLAYS

574	#1 Columbus	4		History	E	200.00	81
575	#2 Jamestown	4		History	E	200.00	81
576	#3 The Pilgrims	3		History	E	150.00	81
577	#4 The Puritans	3		History	E	150.00	81
578	#5 Peter Stuyvesant	3		History	E	150.00	81
579	#6 The Gateway to the West	3		History	E	150.00	81
580	#7 Wolfe and Montcalm	3		History	E	150.00	81
581	#8 The Eve of the Revolution	3		History	E	150.00	81
582	#9 Declaration of Independence	3		History	E	150.00	81
583	#10 Yorktown	3		History	E	150.00	81
584	#11 Vincennes	3		History	E	150.00	81
585	#12 Daniel Boone	3		History	E	150.00	81
586	#13 The Frontier Woman	3		History	E	150.00	81
587	#14 Alexander Hamilton	3		History	E	150.00	81
588	#15 Dixie	3		History	E	150.00	81

589	The Circle Family	¾	260	Mathematics	J	14.40	60

**Awarded by Board of Education

Item Nos. 590, 591, 592, 593, Printed at the top of Page 14

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
594	Clay & Stone	¼	100	Social Studies	E	6.00	55
595	Cleanliness—Clean Clothes	½		Health Ed.	E	12.00	54
596	Cleanliness—Clean Face & Hands	½		Health Ed.	E	12.00	54
597	Cleanliness—Keeping the Hair Clean	½		Health Ed.	E	12.00	54
598	Coffee	1		Geography	E	24.00	54
599	Coffee and Sugar	¼	100	Geography	E	6.00	55
600	The Comma Butterfly	1	319	Nature Study	E	19.46	45
601	Common Mistakes and Their Correction	1	385	Photography	V	26.50	64
602	Comomn Salt	1		Geography	E-J	24.00	54
603	Compressed Air	1		Gen. Science	J	24.00	54
604	The Cone-Cylinder	1	360	Matematics	J	19.20	60
605	**The Cooling System and Clutch	1		Auto. Mech.	V	21.60	45
606	Cotton Goods	1	400	Homemak. Arts	A	24.00	54
607	Coutrship of Miles Standish	3	1200	Literature	J	105.00	53
608	The Covered Wagon	3	1200	History	E	120.00	53
609	Creative Painting in Landscape	1	400	Art	A	21.00	63
610	The Cricket on the Hearth	3	1200	Literature	E	60.00	53
611	Critters, The	1	491	Arts and Crafts	E	21.00	63
612	Crystallization Reel 2	1		Chemistry	A	39.60	45
613	Current Electricity	2		Gen. Science	J	50.00	38
614	Cycle of Erosion	1	400	Geography	J	24.50	51
615	Dairy Products	¼	100	Geography	E	6.00	55
616	Dairy Products	1		Geography	E	12.80	60
617	**Day at the Zoo	1	360	Nature Study	E	6.30	47
618	Decorative Metal Work	1	400	Art	A	30.00	62
619	Deep Sea Fishing	1	314	Geography	E	24.00	63
620	Desert	¼	100	Geography	E	6.00	55
621	Desert (with captions)	½	200	Geography	E	12.00	55
622	Development of a Bird Embryo	1		Biology	A	24.00	54
623	Digestion	1		Biology	A	24.00	54
624	Dinner Time on the Farm	1	345	Nature Study	E	25.00	56
625	Dispersal of Seeds	1	400	Nature Study	E	22.50	55
626	Down on the Farm	1	350	Nature Study	E	35.00	69
627	Drydocking & Repairing of Ocean Going Ships	1	400	Geography	J	24.00	61
628	Dwellers in Cold Countries	1	400	Geography	E	22.50	55
629	Dwellers in High Mt. Countries	1	400	Geography	E	22.50	55
630	**The Earth-Latitude and Longitude	1	400	Geography	J	22.50	55
631	**The Earth-Rotation and Revolution	1	400	Geography	J	22.50	55
632	**The Earth-Surface and Climate	1	400	Geography	J	22.50	55
633	Earthquakes	1		Geography	J	14.40	60
634	Earthworm	1	400	Biology	A	22.50	55
635	Electrical Magnetism I	1		Physics	J	21.60	38
636	Electrical Magnetism II	1		Physics	J	21.60	38
637	Elements of Photography #1	1	350	Photography	V	21.00	63

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
590	Circulation	1		Biology	A	24.00	54
591	Circulatory Control	1	400	Biology	A	24.00	54
592	**Circus City	2	831	Social Studies	E	50.00	56
593	A City Home	¼	100	Social Studies	E	6.00	55
638	Elements of Photography #2	1	463	Photography	V	21.00	63
639	Elementary Manual Training	1	425	Shop	E	24.00	62
640	Energy from Sunlight	1		Science	A	24.00	54
641	**The Engine	2		Auto Mech.	V	43.20	45
642	England's Coronation	1	360	History	A	6.30	47
643	Essentials of Wood Turning	½	250	Shop	E	24.00	41
644	The Etcher and His Art	½	147	Art	A	7.94	45
645	Exposure & Exposure Meters	1	344	Photography	V	26.50	64
646	The Eyes (Elem.)	1	374	Health Ed.	J	24.00	54
647	The Eyes (Adv.)	1	403	Health Ed.	A	24.00	54
648	**The Farm	1		Nature Study	E	24.00	54
649	Farming the Oyster	1	321	Geography	E	15.00	80
650	The Feet	1		Health Ed.	E	24.00	54
651	Fertilization	½	200	Biology	A	12.00	54
652	Film Editing	1	360	Photography	V	26.50	64
653	Fire Fighters	1	413	Social Studies	E	25.00	56
654	Fire Making	1	400	Gen. Science	A	24.00	54
655	First Aid—Care of Minor Wounds	¼	100	Health Ed.	A	6.00	54
656	First Aid—Carrying the Injured	¼	100	Health Ed.	A	6.00	54
657	First Aid—Control of Bleeding	¾	300	Health Ed.	A	18.00	54
658	First Aid—Life Saving	1	400	Health Ed.	A	24.00	54
659	First Americans	1	408	History	E	24.00	60
660	First Families of America	½	140	History	E	8.01	45
661	Fish and Fowl	1		Geography	E	17.60	60
662	Fishing	¼	100	Geography	E	6.00	55
663	Flax to Linen	1	400	Geo. Textiles App. Chem.	A	24.00	54
664	**Fluffy the Kitten	1	392	Nature Study	E	22.50	77
665	**Food and Growth	1		Health Ed.	E	24.00	54
666	The Forest Falls	1	400	Geography	E	24.00	61
667	The Forest Floats	1	400	Geography	E	24.00	61
668	Formation of Soil	1		Eco. Geo.	A	24.00	54
669	**Four-Stroke Cycle Gas Engine	1		Auto. Mech.	V	24.00	54
670	The Frog	1	400	Nature Study	E	22.50	55
671	Frogs, Toads and Salamanders	1	400	Biology	A	24.00	54
672	From Flower to Fruit	1	400	Biology	A	24.00	54
673	From Forest to Newsboy	1	400	Geography	E	24.50	51
674	From Tree to Newspaper	1		Geo. App. Chem.	E-A	24.00	54
675	From Tree to Sugar	½	182	Nature Study	E	12.00	80
676	Fruits	¼	100	Geography	E	6.00	55
677	Furniture Making	1	400	Homemaking	A	24.00	54
678	Game Birds	1		Nature Study	E	24.00	54
679	Garden Activities	1	350	Nature Study	E	35.00	69

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
680	George Washington, His Life and Times	4		History	E	96.00	54
681	Granite	1	394	Geography	E	26.50	64
682	The Grasshopper	1	395	Bio. Gen. Sci	A	22.50	55
683	Great Arctic Seal Hunt	2	800	Geography	E	49.00	51
684	The Green Plant	1		Bio. Gen. Sci.	A	24.00	54
685	Growing Fibers	¼	100	Geography	E	6.00	55
686	**Guatemala	1	404	Geography	E	24.00	63
687	Happy Hen and Her Chicks	¾	270	Nature Study	E	18.90	71
688	Harbor Safety Measures	1	400	Soc. Study	E	24.00	61
689	Harmless Serpents	¼	100	Nature Study	E	6.33	41
690	Hawaii	1	360	Geography	E	6.30	47
691	Here Comes the Circus	1	420	Activities	E	25.00	56
692	High Speed Motion Pictures	1	400	Physics	A	20.00	68
693	Historical Introduction to Chemistry	1	400	Chemistry	A	24.00	54
694	Hot Air Heating	1		Science	A	24.00	54
695	The House Fly	1	400	Biology	A	24.00	54
696	How the Heart Works	½	200	Bio. Gen. Sci.	A	12.00	72
697	How Life Begins	3	1200	Biology	A	72.00	46
698	How Nanook Gets His Food	1	381	Geography	E	35.00	57
699	How Nanook Travels	1	393	Geography	E	35.00	57
700	How Seeds Germinate	1		Nature Study	E	15.00	78
701	**How the Telephone Works	½	189	Gen. Science	J	9.93	45
702	How to Use Filters	1	384	Photography	V	26.50	64
703	How We Breathe	½	216	Health Ed.	E	13.68	45
704	How We Hear	1	400	Gen. Sci. Bio. Health Ed.	A	25.50	66
705	How We Pay Our Gas Bill	¾	280	Mathematics	J	14.40	60
706	How We See	1	400	Gen. Sci. Bio. Health Ed.	A	25.50	66
707	How We Spend the Money We Earn	1	434	Mathematics	J	19.20	60
708	How You See	½	180	Health Ed.	J	9.25	45
709	**The Humming Bird	1		Nature Study	E	10.80	45
710	Hunting Musk Ox	1	325	Geography	E	24.00	41
711	**Ignition	2½		Auto. Mech.	V	54.00	45
712	Indians of the Painted Desert	¼	116	History	E	6.54	45
713	In the Hands of the Enemy	2	755	History	E	30.00	80
714	In Our Garden	1	399½	Nature Study	E	22.50	55
715	Insect Minicry and Song	¼	100	Nature Study	E	6.33	41
716	International Ice Patrol	1	400	Geography	J	30.00	41
717	Introducing Mexico	1	391	Geography	E	26.50	64
718	Iron Ore to Pig Iron	1		Geo. App. Chem.	E-A	24.00	54
719	Iron and Steel	¼	100	Geography	E	6.00	55
720	Jewelled Daughters of the Air	¼	157	Nature Study	E	9.68	45
721	Kindness to Birds	1	400	Nature Study	E	25.20	45
722	Know Your Football	1	360	Health Ed.	A	6.50	70
723	Lair of the Spider	¾		Nature Study	E	21.60	45
724	Latin America	2	705	Geography	E	53.00	64

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
725	Lead	1		Chemistry	A	24.00	54
726	Leather	¼	100	Geography	E	6.00	55
727	Leather	1		Geography	E	24.00	54
728	Leather Work	1	425	Art	E-J	24.00	62
729	Lenses	1		Gen. Science	A	24.00	54
730	Life History of the Pearl	½	163	Nature Study	E	8.80	45
731	Life History of the Yellow Fever Mosquito	1		Bio. Science	A	24.00	54
732	**Life in the Sahara	1		Geography	E-J	24.00	54
733	Limestone to Marble	1		Chemistry	A	24.00	54
734	Little Dutch Tulip Girl	¾		Literature	E	16.00	60
735	**Little Friend of the Wild	1	350	Nature Study	E	21.60	45
736	**Little Red Riding Hood	1	400	Literature	E	14.40	60
737	Little Swiss Wood Carver	1		Literature	E	16.00	60
738	The Living Cell	1		Hygiene Bio.	A	24.00	54
739	Lizards	¼	100	Nature Study	E	9.50	41
740	Locks at Sault Ste. Marie	¾	300	Geography	E	25.00	56
741	Loom Weaving	1	425	Art Weaving	A	24.00	62
742	Lost World	1	400	**Biology**	A	24.00	54
743	Lucite, Carving in	1 ¼	535	Art	A	21.00	63
744	Lumber	¼	100	Geography	E	6.00	55
745	Lure of the Andes	2	700	Geography	E	24.00	48
746	The Mad Ohio	1	400	Geography	E	20.00	41
747	The Magnet	1	400	Science	J	22.50	55
748	**Magnetic Effects of Elecricity	1		Science	A	24.00	54
749	**Making of an Airplane Part	2	769	Aviation	V	48.00	63
750	Making Clay Pottery	1	400	Manual Training	E-J	24.00	62
751	Making Friends with Chipmunks	1		Nature Study	E	20.48	45
752	Making a Lithograph	1	450	Art	E-A	22.50	67
753	Make a Mask	1	400	Art	A	21.00	63
754	Maple Syrup and Sugar	¾		Geography	E	18.00	54
755	Marionette Construction	1	425	Art	E-J	24.00	62
756	Market Gardening	1		Geography	E	24.00	54
757	Mass Production	¼	100	Geography	E	6.00	55
758	**Measurement and Life	¾	275	Mathematics	J	14.40	60
759	Meat Animals	¼		Geography	E	6.00	55
760	Meat Packing	1		Geography	J	24.00	54
761	Methods of Shipping Cargo	1	400	Social Studies	J	24.00	61
762	Mexico-Central America	¼	100	Geography	E	6.00	55
763	Michigan Beaver	1	402	Nature Study	E	24.00	63
764	Michigan Fur Bearers	1	388	Nature Study	E	24.00	63
765	Microscopic Animal Life	1		Sci. Biology	A	24.00	54
766	The Milky Way	1		Science	A	24.00	76
767	Mississippi Basin	¼	100	Geography	E	6.00	55
768	Mississippi Basin (with captions)	½	200	Geography	E	12.00	55
769	Mold and Yeast	½	200	Biol.	A	12.00	54
770	Monkeys and Apes	½		Nature Study	E	12.00	54
771	Monkeys of Asia	¼	100	Nature Study	E	6.33	41

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
772	Monotype, Making a	1 ¼	497	Art	A	21.00	63
773	The Moon	1		Science	A	24.00	76
774	Mr. President	1	360	History	E	6.30	70
775	Mrs. Brown Goes Shopping	1 ¼	500	Mathematics	J	38.40	60
776	**Mrs. Brown Learns More About Functions of Savings Banks	¾	330	Mathematics	J	19.20	60
777	**Mrs. Brown Opens a Bank Account	1		Mathematics	J	19.20	60
778	Mrs .Brown Pays Her Rent—Milk Bill	½	170	Mathematics	J	9.60	60
779	Muscles	1		Health Ed.	J	24.00	54
780	Mysteries of Snow	½	218	Nature Study	E	14.99	45
781	Nanook Builds an Igloo	1	315	History	E	35.00	57
782	Nanook and His Family	1	371	History	E	35.00	57
783	Nathaniel Hawthorne	1	400	Literature	J	24.50	51
784	Nature's Tent Builders	½	152	Nature Study	E	8.21	45
785	Navigation Ship Into Harbor	1	400	Social Study	J	24.00	61
786	A Newspaper in the Making	½	140	Geography	E	8.52	45
787	New World Cat Animals	¼	100	Geography	E	6.33	41
788	New York Water Supply	1	400	Gen. Science	A	24.00	54
789	New York the Wonder City	1	360	Geography	E	6.30	47
790	**The Nitrate Industry of Chile	1	360	Geography	E	14.40	60
791	Nitrogen Cycle	1	401	Chemistry	A	24.00	54
792	**Northern Bears	¼	100	Nature Study	E	11.50	41
793	**Old Fashioned Farm	¼	100	Geography	E	6.00	55
794	The Old South	1		Geography	E	24.00	54
795	On the Farm	2	780	Nature Study	E	53.00	64
796	Optical Instruments	1		Science	A	24.00	54
797	Our Children's Money	1	450	Thrift Ed.	E	26.50	64
798	Our Common Enemy the Fly	1		Health Ed. Nature Study	E-J	24.50	51
799	Our Four Footed Helpers	1		Nature Study	E	12.80	60
800	Outwitting the Ant	½	161	Nature Study	E	9.35	45
801	Overland to California	1		Geography	J	24.00	54
802	**Pacific Coast	¼	100	Geography	E	6.00	55
803	Pacific Coast (with captions)	½	200	Geography	E	12.00	55
804	Pacific Coast Fishermen	1	400	Social Science	E-J	24.00	61
805	Pacific Coast Salmon	1	400	Biology	A	24.00	54
806	**Panama Canal	1		Geography	E-J	24.00	54
807	**Panama and West Indies	¼	100	Geography	E	6.00	55
808	Panama and West Indies (with captions)	½	200	Geography	E	12.00	55
809	Parabola	1	400	Art	A	25.00	43
810	**Peat and Coal	¼	100	Geography	E	6.00	55
811	People Without a History	¼	95	History	E	5.13	45
812	**Petroleum	¼	100	Geography	E	6.00	55
813	Plant Reproduction	1	400	Biology	A	24.00	72
814	Plaster Casting	1 ½	672	Art	A	42.00	63

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
815	Plaster Carving	1	445	Art	A	21.00	63
816	Port Commerce	1	400	Soc. Sci. Thrift	E-J	24.00	61
817	The Post Office	1	400	Social Study	E	25.00	56
818	Posture	1		Health Ed.	E-J	24.00	54
819	Pottery Making	2	750	Art	E-A	48.00	41
820	**Poultry and Truck Farm	¼	100	Geography	E	6.00	55
821	Presenting an Analysis of Tennis Fundamentals	2	600	Health Ed.	A	50.00	74
822	Principles of Flight	1	400	Physics	A	24.00	54
823	Prisms and Pyramids	½	200	Mathematics	J	9.60	60
824	Procedure of U. S. Customs for Ships	1	400	Social Science	J	24.00	61
825	Protecting Our Country from Plague	1	400	Social Science	E-J	24.00	61
826	Protozoa	1 ¾	700	Biology	A	42.00	54
827	Pueblo Dwellers	1		History	E	24.00	54
828	Pueblo Indians of Today	1	325	History	E	21.60	45
829	Purifying Water	1		Science	A	24.00	54
830	The Racoon	½		Nature Study	E	12.00	54
831	Range Sheep	1		Geography	E	24.00	54
832	Reading Meters	¾	250	Mathematics	J	15.00	60
833	The Rectangle Family	½	175	Mathematics	J	9.60	60
834	Refining Crude Oil	1		Geography	J	24.00	54
835	Reptiles	1	400	Biology	A	24.00	54
836	Robert Burns	1	400	Literature	J	24.50	51
837	Rocky Mountain Mammals	1		Nature Study	E	24.00	54
838	**Rocky Mountain States	¼	100	Nat. St. Geo.	E	6.00	55
839	Rocky Mountain States (with captions)	½	200	Nat. St. Geo.	E	12.00	55
840	**Rubber	1		Geography	J	24.00	54
841	**Rubber	¼	100	Geography	E	6.00	55
842	Run Sheep Run	1 ½		Geography	E	37.50	40
843	**Running Gear and Differential	2		Auto. Mech.	V	43.20	45
844	Rural Dwellers in Temperate Countries	1	400	Geography	E-J	22.50	55
845	Safeguarding Health at Nation's Gateway	1	400	Social Science	E-J	24.00	61
846	Safety at Home	½	194	Health Ed.	E-J	12.00	54
847	**Safety at Play	½	232	Safety	E	12.00	54
848	Sahara	1	360	Geography	E	6.30	47
849	San Francisco	1	360	Geography	E	6.30	47
850	Sardines	½	158	Geography	E	8.53	59
851	Science of Life—How Plants & Animals Cause Disease	1	396	Health Ed.	J	31.50	45
852	Science of Life—Interdependence of Living Things	1	374	Health Ed.	J	31.50	45
853	Sea Going Thrills	1	360	Health Ed.	E	6.30	47
854	Seal Hunt	1	402	Geo. Nat. St.	E	24.00	63

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
855	Seed and Seed Dispersal	1	400	Nature Study	E	24.50	51
856	Seeing the Unseen	1	400	Physics	A	20.00	68
857	Sewage Disposal	1	400	Biology	A	24.00	54
858	Shore Activities of the Pacific Coast Fishermen	1	400	Geo. Thrift	E-J	24.00	61
859	Shore Lines	1	400	Biology	A	14.40	60
860	Silas Marner	3	1200	Literature	J	60.00	53
861	**Simple Machines	1		Vocational	V	24.00	54
862	The Skin	1		Health Ed.	A	24.00	54
863	Soap	1	400	App. Chem.	A	24.00	54
864	The Solar System	1		Science	A	24.00	76
865	Some Friendly Birds	1		Nature Study	E	24.00	54
866	Some Larger Mammals	1		Nature Study	E-A	24.00	54
867	Some Seashore Animals	¾		Nature Study	E-A	18.00	54
868	Some Water Insects	¾		Nature Study	E-A	18.00	54
869	Some Birds as Neighbors	1	324	Nature Study	E	20.41	45
870	Sparrowhawk	1		Nature Study	E	29.25	45
871	Speaking of Safety	1	400	Safety	E	16.00	60
872	The Sphere-Hemisphere	½	200	Mathematics	J	9.60	60
873	Spiders	1		Nature Study	E	24.00	54
874	Spring	1	400	Nature Study	E	17.50	53
875	Story of Coal	¾	258	Geography	E	16.18	45
876	Story of Milk	3		Health Ed.	J-E	59.40	45
877	Story of Milk	1½		Health Ed.	E-J	25.00	56
878	Stung! By Amos Quito	½	219	Nature Study	E	13.89	45
879	The Sun	1		Science	A	24.00	76
880	Swat the Fly	1	400	Health Ed.	E-J	22.50	55
881	Tableware	1	400	Home Eco.	A	24.00	54
882	Tambo Rice Farmer	2	820	Geography	J	53.00	64
883	Tapping the Maples	⅓	130	Geography	E	7.80	59
884	Tea-Rice-Coconuts	¼	100	Geography	E	6.00	55
885	Technique of Lithographing	2	275	Art	A	43.00	67
886	Technique of Silk Screen Process	1	400	Art	A	30.00	62
887	Textiles	¼	100	Geography	E	6.00	55
888	Theatre Design	1	400	Art	A	21.00	63
889	Three Jungle Giants	¼		Nature Study	E	6.00	54
890	Through the Earth	¾	268	Geography	J	16.77	45
891	Through Life's Windows	1	400	Health Ed.	J	24.50	51
892	Tin	1	400	Chemistry	A	24.00	54
893	Toads	1	376	Nature Study	E	22.32	42
894	To Find Density by Displacement	½	125	Science	A	16.50	64
895	The Tortoises	¼	100	Nature Study	E	6.33	41
896	Trail Mates	2	725	Nature Study	E	35.00	48
897	**Transmission	2		Auto. Mech.	V	43.20	45
898	Transportation	1	400	Geography	J	25.00	53
899	**Transportation and Cities	¼	100	Geography	E	6.00	55
900	Transportation on the Great Lakes	1		Geography	E	24.00	54
901	Trap-Door Spider	¼	65	Nature Study	E	4.86	45

**Awarded by Board of Education

Item No.	Title	No. of Reels	Length in Ft.	Subject	School Level	Price	*
902	A Trip to Bedloe Island	1	360	Geography	E	24.00	75
903	Trip to the Moon	1	400	Literature	J	24.50	51
904	Twinkle Twinkle Little Star	3	1200	Literature	E	60.00	53
905	Undersea Life	½		Nature Study	E-A	12.00	54
906	Urban Dwellers in Temperate Countries	1	400	Geography	J	22.50	55
907	Vacation Safety	1	385	Health Ed.	J	24.00	54
908	Vicar of Wakefield	3	1200	Literature	A	60.00	53
909	Visiting the Eskimos	1	350	Geography	E	24.00	41
910	Vitamin B_1	1	400	Gen. Science	A	24.00	54
911	Vitamin D	1	400	Gen. Science	A	24.00	54
912	Volcanoes	1		Geography	A	24.00	54
913	Wading Birds—Midwest	¾		Nature Study	E	6.33	41
914	Washington Irving	1	400	Literature	J	24.50	51
915	The Water Cycle	1		Gen. Science	A	24.00	54
916	Water Power	1		Science	A	24.00	54
917	Watersheds & Power	¼	100	Geography	E	6.00	55
918	Wee Ann Visits the Farms	2	728	Nature Study	E	45.00	49
919	Wee Ann Visits the Zoo	1	500	Nature Study	E	22.50	49
920	The Wee Scotch Piper	1		Geography	E	16.00	60
921	What's in a Dress	2		Guidance	V	27.36	79
922	Wheat	1		Geo. Soc. St.	E-A	24.00	54
923	Wheat and Bread	¼	100	Geography	E	6.00	55
924	Who's Zoo	1		Nature Study	E	21.00	51
925	Wild Animals	1	337	Nature Study	E	24.00	63
926	**The Winner	1	360	Health Ed.	J	6.30	47
927	Within the Gates	2		Guidance	V	33.22	79
928	Woodland Wonders of the West	1	400	Geography	E	22.50	55
929	The Woodpecker, The Farmers' Friend	1		Nature Study	E	8.55	45
930	Woolen Goods	1		Geography	E	24.00	54
931	Work of Underground Waters	1	400	Biology	A	14.40	60
932	Yellowstone Wonderland	1	390	Geography	E	12.80	60
933	Zebras	¼		Nature Study	E	6.33	41
934	**Zones	¼	100	Geography	E	6.00	55

**Awarded by Board of Education

WAR FILMS

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF GOVERNMENT REPORTS
OFFICE OF THE COORDINATOR OF GOVERNMENT FILMS

WASHINGTON, D. C.

WAR FILMS

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NOTICE

To borrow any of the films listed on the following pages, please note the name and address of the agency under which the film is listed and write directly to that agency.

No rental fee is charged for Government films. Exhibitors are asked to pay transportation charges to and from points of exhibition. Films are furnished with the understanding that there shall be no admission or rental fees charged for programs in which the films are used unless shown in licensed theaters as parts of regular programs and/or where Government films have been commercially distributed.

It is best to give an alternate choice of films if possible, and an alternate date. Definite dates must be given. Be sure that your first choice and alternate films are both from the same agency. Try to make your requests for films at least three weeks in advance. Specify whether you need 16mm or 35mm films. All of the films listed are sound productions. Do not attempt to run a 16mm sound picture on a silent projector.

If there is no express office in your town, please indicate the nearest town which does have express service.

Please return films promptly. Borrowers are held responsible for any damages.

April 14, 1942

INFORMATIONAL

U. S. DEPARTMENT OF AGRICULTURE

For the following films, write to the depository in your state listed below, or to the U. S. Department of Agriculture, Division of Motion Pictures, Washington, D. C.:

FARMERS AND DEFENSE (2 reels, 20 minutes) 16 and 35mm, sound (1941).
Pertinent facts concerning agriculture and its place in National Defense are brought out in the manner of an "Information Please" program. Questions are answered by the Secretary of Agriculture and Administrators of the Agricultural Adjustment Administration, Farm Security Administration, and Office of Agricultural Defense Relations.

FOR HEALTH AND HAPPINESS (1 reel, 9 minutes) 16mm, silent and sound, color (1941).
Discusses the vital bearing good nutrition has on human health and happiness. Shows scenes of well-nourished children from infancy to youth, and the food groups that contribute to all-round development.

PLOWS, PLANES AND PEACE (2 reels, 17 minutes) 16 and 35mm, sound (1941).
While America builds strength for defense in the skies, on land and sea, seven million farmers build strong defenses against hunger and lack of vital supplies through the national farm program. The film portrays the activities of farmers in providing abundant food supplies to meet war requirements.

Depositories

Extension Service, University of Alaska, College, Alaska.

Extension Division, University of Arizona, Tucson, Arizona; also, Extension Division, University of California, Los Angeles, California.

Extension Division, University of California, Berkeley, California (serves northern California); Extension Division, University of California, 815 South Hill Street, Los Angeles, California (serves southern California).

Bureau of Visual Instruction, University of Colorado, Boulder, Colorado.

Department of Visual Instruction, General Extension Division, University of Florida, Gainesville, Florida.

INFORMATIONAL (CONTINUED)

Division of General Extension, University System of Georgia,
223 Walton Street, N. W., Atlanta, Georgia.

Extension Service, College of Agriculture, University of Idaho,
Boise, Idaho.

Visual Aids Service, University of Illinois, Urbana, Illinois.

Bureau of Visual Instruction, Extension Division, Indiana
University, Bloomington, Indiana.

Visual Instruction Service, Iowa State College, Ames, Iowa.

Bureau of Visual Instruction, University Extension Division,
University of Kansas, Lawrence, Kansas.

Department of Visual Aids, University of Kentucky, Lexington,
Kentucky.

Extension Service, College of Agriculture, Amherst, Massachusetts.

Extension Service, University of Michigan, Ann Arbor, Michigan;
also, State Extension Service, Michigan State College, East
Lansing, Michigan.

Montana State College of Agriculture and Mechanic Arts, Bozeman,
Montana.

University Extension Division, University of Nebraska, Lincoln,
Nebraska.

Extension Division, University of California, Berkeley, California
(for Nevada).

Extension Service, University of New Hampshire, Durham, New Hampshire.

New Jersey State Museum, State House Annex, Trenton, New Jersey.

Museum of New Mexico, Santa Fe, New Mexico.

Bureau of Visual Instruction, University of North Carolina,
Chapel Hill, North Carolina.

Department of Information, North Dakota Agricultural College,
Fargo, North Dakota.

Department of Visual Instruction, Oregon Agricultural College,
Corvallis, Oregon.

INFORMATIONAL (CONTINUED)

Extension Service, Oklahoma A and M College, Stillwater, Oklahoma.

Extension Service, University of Puerto Rico, Rio Piedras, Puerto Rico.

Extension Division, University of South Carolina, Columbia, South Carolina.

Extension Division, University of South Dakota, Vermillion, South Dakota; also, Extension Service, South Dakota State College of Agriculture, Brookings, South Dakota.

Division of University Extension, University of Tennessee, Knoxville, Tennessee.

Visual Instruction Bureau, University of Texas, Austin, Texas; also, Extension Service, A. & M. College of Texas, College Station, Texas.*

Extension Division, University of California, Berkeley, California (for Utah).

Robert Hull Fleming Museum, University of Vermont, Burlington, Vermont.

Extension Service, State College of Washington, Pullman, Washington; also, Department of Visual Instruction, Oregon Agricultural College, Corvallis, Oregon (for Washington).

The Library, University of West Virginia, Morgantown, West Virginia.*

Bureau of Visual Instruction, University of Wisconsin, Madison, Wisconsin.

Department of Visual Instruction, Oregon Agricultural College, Corvallis, Oregon (for Wyoming).

* Serves only Department of Agriculture workers.

FEDERAL SECURITY AGENCY

Write to the Division of Defense Health and Welfare Services, Federal Security Agency, Washington, D. C., for the following film:

HIDDEN HUNGER (2 reels, 22 minutes) 16mm, sound (1941). This picture, starring Walter Brennan, dramatizes the need for adequate diet. Produced by the American Film Center.

INFORMATIONAL (CONTINUED)

U. S. Public Health Service

For the following films write to the Federal Security Agency, U. S. Public Health Service, Washington, D. C.:

ABOUT FACES (1 reel, 15 minutes) 16mm, sound, color; 16 and 35mm, sound, black-and-white (1941).
Entertaining subject on dental health. Follows "Danny" from the cradle to his induction in the Army, stressing importance of dental care.

KNOW FOR SURE (Venereal disease) (1 reel, 10 minutes) 16 and 35mm, sound (1942).
A very frank treatment for male audiences only, particularly for men in camps and defense industries. Deals with prophylaxis, diagnosis, and clinical treatment. Also gives attention to follow-up treatment, sources of infection, and community control. Made in Hollywood, produced by Darryl Zanuck, directed by Lewis Milestone, for the Public Health Service.
NOTE: Prints of this film have been made available to all State Health Offices from which they may be borrowed.

SAVE A DAY (1 reel, 10 minutes) 16 and 35mm, sound (1942).
A film on workers' health, built around activities of the Industrial Hygiene Division of the National Institute of Health and units of state health departments. Examples of effective industrial hygiene are shown, and the importance of keeping men on the job by removing industrial health hazards is properly emphasized. Various methods of doing this are explained.

OFFICE FOR EMERGENCY MANAGEMENT

The following films are being released by the Office for Emergency Management Film Unit. They are being distributed at no cost other than transportation charges. These subjects are all 16mm sound, and cannot be run on a silent projector. 35mm sound prints are obtainable from the OEM Film Unit, 1600 Broadway, New York, New York. 16mm prints may be obtained from the following list of depositories:

Depository	Region
Y.M.C.A. Motion Picture Bureau, 347 Madison Avenue, New York, New York.	New England States, New York, Pennsylvania, Delaware, New Jersey

INFORMATIONAL (CONTINUED)

Division of Information, Office for Emergency Management, Washington, D. C.	Maryland, Virginia, West Virginia, North and South Carolina, Georgia, Florida, District of Columbia
Y.M.C.A. Motion Picture Bureau, 19 South LaSalle Street, Chicago, Illinois.	Ohio, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, North and South Dakota, Nebraska, Kentucky, Missouri, Kansas
Y.M.C.A. Motion Picture Bureau, 351 Turk Street, San Francisco, California.	California, Oregon, Washington, Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona
Y.M.C.A. Motion Picture Bureau, 1700 Patterson Avenue, Dallas, Texas.	Texas, Louisiana, New Mexico, Oklahoma, Arkansas, Tennessee, Mississippi, Alabama

ALUMINUM (1 reel, 9 minutes)
This is the story of the "fateful metal"; importation of bauxite; transmutation into alumina and thence into aluminum sheeting and subsequently into fighting planes. This behind-the-scenes story of our most strategic metal is told in striking photography and eloquent commentary. Photographed on the Gulf Coast and at leading reduction and sheet-rolling plants, chiefly in the South.

ARMY IN OVERALLS (1 reel, 7 minutes)
The contribution of the Civilian Conservation Corps in clearing military reservations is shown. The film was photographed principally at Fort Benning, Georgia, one of the largest reservations in the world. CCC boys are shown felling trees, uprooting stumps, clearing land, building roads and bridges. Scenes show rifle ranges with soldiers in rifle practice, tanks maneuvering through woods, and parachute troops bailing out over practice field as CCC boys work in foreground.

BOMBER (1 reel, 10 minutes)
This subject shows the manufacture of the Martin B-26 medium bomber and suggests its speed and power as a combat plane. "As a production it ranks with the finest documentary films ever made. The camera work is excellent, with each frame a perfect photograph. A special commentary, written by Carl Sandburg, stresses power and certainty in its poetic composition."--The Hollywood Reporter.

INFORMATIONAL (CONTINUED)

BUILDING A BOMBER (2 reels, 20 minutes)
This is an educational exposition on the building of the B-26 U. S. Army medium bomber, and is of considerable interest to engineering schools, vocational groups, and educational organizations eager to learn how our skyfighters are made.

BUILDING A TANK (2 reels, 20 minutes)
The speed-up of the tank production program is shown, giving technical detail regarding construction and processes involved in the manufacture of the M-3 medium tank.

DEFENSE REVIEW NO. 1 (1 reel, 9 minutes)
This film includes three 3-minute stories: BITS AND PIECES, subcontracting of defense production; WORKSHOPS OF DEFENSE, NYA defense job training center; AMERICA BUILDS SHIPS, merchant shipbuilding on the Gulf Coast.

DEFENSE REVIEW NO. 2 (1 reel, 9 minutes)
This film includes three 3-minute stories: SYNTHETIC RUBBER and its importance in war; NEW DEFENSE AIRPORTS showing airports in the making; POTS TO PLANES showing the smelting of aluminum collected in the nation-wide campaign.

DEFENSE REVIEW NO. 3 (1 reel, 9 minutes)
This film includes three 3-minute stories: RIVERBOAT, showing inland waterway transportation of defense products and raw materials; YOUNG EAGLES, showing air pilot training with emphasis on the Link trainer; FOOD FOR FREEDOM on the agricultural food supply for the United States and Great Britain.

HOMES FOR DEFENSE (1 reel, 10 minutes)
This film shows the problem of housing defense workers and the various types of projects under way to meet the defense housing problem. Representative projects for all parts of the country are shown, including the South, West Coast, Middle West, and East.

MEN AND SHIPS (2 reels, 22 minutes)
This is a picturization of training officers and seamen in our growing merchant marine. Magnificent photography, special score played by musicians from New York Philharmonic Symphony.

POWER FOR DEFENSE (1 reel, 10 minutes)
This film shows the variety of interesting uses of hydroelectric power in the Tennessee Valley. Production of munitions, shells, army shoes, aluminum, airplanes, uniforms, textiles, and other materials is shown. Photographed in the Tennessee Valley. Produced by the National Defense Advisory Commission in cooperation with the Tennessee Valley Authority.

INFORMATIONAL (CONTINUED)

SAFEGUARDING MILITARY INFORMATION (1 reel, 10 minutes)
This film was originally made by the Motion Picture Academy of Arts and Sciences as a training film for the U. S. Army, and is now being shown generally throughout the country. It stresses the importance of secrecy on the part of military personnel and workers engaged in defense activities, and shows the results of careless talk, dramatic scenes of ship explosion, sabotage, and disastrous events resulting from thoughtless revelation of information to the enemy.

TANKS (1 reel, 10 minutes)
Graphically describes the manufacture of the M-3 medium tank. Photographed at the Chrysler Detroit Tank Arsenal, Fort Knox, Kentucky, and an unnamed Eastern Seaport.
"The photography is magnificent, the musical score by Jack Schaindlin forms a meaningful background to the film; and Orson Welles reads a fine script with dramatic excellence. In telling the tale of how the M-3 medium tank is assembled, tested and shipped overseas, all the component factors are fused into an outstanding reel. Exhibitors will find the subject an exciting way of showing how our production plants are forging the 'armament of victory'."--Film Daily.

THE NEW SPIRIT (1 reel, 7 minutes)
A Walt Disney production for the Treasury Department, picturing Donald Duck learning how to help the war effort by paying his income tax.

WOMEN IN DEFENSE (1 reel, 10 minutes)
This is a topical exposition of the various roles women are assuming in the war effort. Principal sequences show women of science, women in industry, and women in the voluntary services. Commentary written by Mrs. Franklin D. Roosevelt and narrated by Katharine Hepburn.

Office of the Coordinator of Inter-American Affairs

The following films are intended to promote understanding and good will between the people of the Americas. They are available from the Office of the Coordinator of Inter-American Affairs, 444 Madison Avenue, New York, New York:

AMERICANS ALL (2 reels) 16mm, sound.
Story of the young people who live and work and play between the Straits of Magellan and the Rio Grande River. Intended to give the people of the United States a better understanding of their little-known fellow Americans to the South. Produced and narrated by Julien Bryan.

INFORMATIONAL (CONTINUED)

BRAZIL (1 reel) 16mm, sound.
A picture of three great cities--Rio de Janeiro, Santos, and Sao Paulo--and of the Amazon River Valley.

BRAZIL GETS THE NEWS (1 reel) 16mm, sound.
The activities of the editorial and technical departments of a great modern newspaper in Sao Paulo.

BUENOS AIRES AND MONTEVIDEO (1 reel) 16mm, sound.
Many aspects of life in the Argentine capital and glimpses of Uruguay's chief city and its gay carnivals.

COLOMBIA (1 reel) 16mm, sound.
The old port of Barranquilla and the fine old towns of Bogota and Cartagena, and Colombia's charming countryside.

HIGH SPOTS OF A HIGH COUNTRY (2 reels) 16mm, sound.
The people of Guatemala and their volcanic country, with its romantic old cities, its markets and farms.

ORCHIDS (1 reel) 16mm, sound.
The story, magnificently illustrated in color, of orchids and other tropical flora in South America.

OUR NEIGHBORS DOWN THE ROAD (4 reels) 16mm, sound.
An automobile tour, much of it on the Pan-American Highway, from Caracas to the Straits of Magellan.

PATAGONIAN PLAYGROUND (1 reel) 16mm, sound.
The scenic beauty and summertime fun of Argentina's Nahuel Huapi Park, on the eastern slope of the Andes.

THE DAY IS NEW (1 reel) 16mm, sound.
A day in the life of the Mexican people, picturing their varied daily activities, from dawn to night.

THE HILL TOWNS OF GUATEMALA (1 reel) 16mm, sound.
The fascinating life of several small towns perched on the slopes of an extinct volcanic mountain.

VENEZUELA (1 reel) 16mm, sound.
The capital city of Caracas and the port of La Guaira, sugar plantations, and colonial forts and trails.

WOODEN FACES OF TOTONICAPAN (1 reel) 16mm, sound.
Guatemalan fiestas, including the breath-taking climax of Chichicastenango's famous eight-day celebration.

CIVILIAN DEFENSE TRAINING

OFFICE FOR EMERGENCY MANAGEMENT

Office of Civilian Defense

FIGHTING THE FIRE BOMB (1 reel, 14 minutes) 16 and 35mm, sound. Shows methods and equipment to be employed in dealing with fire bombs.

The above film may be obtained from the following state defense councils:

Mr. Houston Cole, Executive Director, Alabama State Defense Council, 300 Dexter Avenue, Montgomery, Alabama.

Mr. R. C. Stanford, Coordinator, Arizona Civilian Defense Coordinating Council, State House, Phoenix, Arizona.

Mr. L. A. Henry, Secretary, Defense Council of Arkansas, Room 336, State Capitol Building, Little Rock, Arkansas.

Mr. Kenneth Fulton, Acting Executive Director, California State Council of Defense, Capitol Building, Sacramento, California.

Mr. W. H. Leonard, Coordinator, Colorado Council of Defense, 503 Gas and Electric Building, Denver, Colorado.

Col. Samuel H. Fisher, Administrator, Connecticut Council for National Defense, Room 302, State Armory, Broad Street, Hartford, Connecticut.

Mr. Gerrish Gassaway, Executive Vice-Chairman, Delaware State Council for Defense, 400 Mullin Building, Wilmington, Delaware.

Col. Lemuel L. Bolles, Executive Vice-Chairman, District of Columbia Council of Defense, District Building, Washington, D. C.

Mr. George L. Burr, Jr., Executive Director, State Defense Council of Florida, Rooms 225-227 City Office Building, Tallahassee, Florida.

Lieutenant Colonel R. C. Job, Executive Director, Georgia Council for National Defense, 323 State Highway Building, Atlanta, Georgia.

Mr. C. E. Arney, Coordinator, Idaho Civilian Defense, State Capitol, Boise, Idaho.

CIVILIAN DEFENSE TRAINING (CONTINUED)

Mr. Carter Jenkins, Coordinator, Illinois State Council of Defense, 188 West Randolph Street, Chicago, Illinois.

Honorable Edward J. Kelly, Mayor of Chicago (Chicago, City - Chicago Commission on National Defense, 174-176 West Washington Street, Chicago, Illinois; Chicago, Metropolitan Area - Chicago Metropolitan Office of Civilian Defense, 23 North Wacker Drive, Chicago, Illinois).

Mr. Clarence A. Jackson, Director, State Defense Council, 612 Board of Trade Building, 143 North Meridian Street, Indianapolis, Indiana.

Mr. Rodney Q. Selby, Secretary, Iowa Industrial and Defense Commission, 505 Crocker Building, Des Moines, Iowa.

Mr. Jeff A. Robertson, Secretary, Kansas Council of Defense, State House, Topeka, Kansas.

Mr. J. J. Greenleaf, Director, Kentucky Civil Defense Commission, Frankfort, Kentucky.

Mr. Roland Cocreham, Coordinator, Louisiana Civilian Defense Council, State Capitol, Baton Rouge, Louisiana.

Mr. Raymond T. Adams, Administrative Director, Maine Civilian Defense Council, State House, Augusta, Maine.

Mr. Isaac S. George, Executive Director, Maryland Council of Defense, Room 203, Calvert Building, Baltimore, Maryland.

Mr. J. W. Farley, Executive Director, Massachusetts Committee on Public Safety, 18 Tremont Street, Boston, Massachusetts.

Mr. Robert J. Byers, Executive Secretary, Michigan Council of Defense, 609 Capitol Savings and Loan Building, Lansing, Michigan.

Mr. Ernest L. Olrich, Coordinator, Minnesota Council of Defense, 619 State Office Building, St. Paul, Minnesota.

Mississippi Civilian Defense Council, Post Office Box 958, Jackson, Mississippi.

Mr. William Anderson, Executive Secretary, Missouri State Council of Defense, State Office Building, Jefferson City, Missouri.

CIVILIAN DEFENSE TRAINING (CONTINUED)

Mr. Tom D. Caverly, Coordinator, Montana Preparedness and Advisory Commission, Capitol Building, Helena, Montana.

Mr. R. F. Weller, Executive Secretary, Nebraska Advisory Defense Committee, State House, Lincoln, Nebraska.

Mr. Hugh A. Shamberger, State Director, Nevada State Council of Defense, Carson City, Nevada.

Honorable Robert O. Blood, Chairman, New Hampshire State Council of Defense, State House, Concord, New Hampshire.

Mr. Audley H. F. Stephan, Chairman, New Jersey Defense Council, 114th Infantry Armory, Trenton, New Jersey.

Captain Fay Guthrie, Coordinator, New Mexico State Council of National Defense, Post Office Box 1018, Santa Fe, New Mexico.

Mr. Thomas L. J. Corcoran, Secretary, State Council of Defense, State Capitol, Albany, New York (New York State).

Lieutenant Governor Charles Poletti, Vice-Chairman, State Council of Defense, State Capitol, Albany, New York (New York State).

Mr. David S. Meiklejohn, Secretary, New York City Defense Council, 60 Broadway, New York, New York (New York City).

Mr. T. S. Johnson, Director, North Carolina State Council for National Defense, Faircloth Hall, East Edenton Street, Raleigh, North Carolina.

Brig. Gen. L. R. Baird, State Director, North Dakota Council of Defense, State House, Bismarck, North Dakota.

Mr. Courtney Burton, Executive Director, Ohio State Council of Defense, 1005 State Office Building, Columbus, Ohio.

Mr. J. William Cordell, Executive Secretary, State Defense Committee, Post Office Box 3057, State Capitol - 417, Oklahoma City, Oklahoma.

Mr. Jerrold Owen, Coordinator, Oregon State Defense Council, 412 State Office Building, Salem, Oregon.

Dr. A. C. Marts, Executive Director, State Council of Defense, P. O. Box 290, Harrisburg, Pennsylvania.

CIVILIAN DEFENSE TRAINING (CONTINUED)

Mr. Frederick A. Wilmot, Executive Secretary, State Council of Defense, Room 203, State House, Providence, Rhode Island.

Major G. Heyward Mahon, Director, South Carolina Council for National Defense, 102 Wade Hampton Office Building, Columbia, South Carolina.

Colonel E. A. Beckwith, Chairman, South Dakota Council of Defense, Rapid City, South Dakota.

Mr. Will R. Manier, Jr., Coordinator, Tennessee State Defense Council, State Capitol, Nashville, Tennessee.

Honorable Coke R. Stevenson, Chairman, National Defense Committee for Texas, Austin, Texas.

Honorable Herbert B. Maw, Utah State Defense Council, 207 South Main Street, Salt Lake City, Utah.

Mr. Albert A. Cree, Executive Vice-Chairman, Vermont Council of Safety, State House, Montpelier, Vermont.

Mr. J. H. Wyse, Coordinator, Virginia Defense Council, Old Memorial Hospital Building, Richmond, Virginia.

Major W. W. Williver, Executive Director, Headquarters, Washington State Defense Council, Room 311, 305 Harrison Street, Seattle, Washington.

Mr. Carl Bachman, Executive Director, State Council of Defense, State Capitol Building, Charleston, West Virginia.

Mr. Geoffrey Willoughby, Executive Secretary, The Wisconsin Council of Defense, 110 East Wisconsin Avenue, Milwaukee, Wisconsin.

Major John T. Lucey, Executive Secretary, Wyoming State Council of Defense, Adjutant General's Office, Cheyenne, Wyoming.

U. S. DEPARTMENT OF WAR

The following training films may be obtained from the nine Army Corps areas, with headquarters in the following cities:

Boston, Massachusetts
Governors Island, New York
Fort Hayes, Columbus, Ohio
Chicago, Illinois

CIVILIAN DEFENSE TRAINING (CONTINUED)

Baltimore, Maryland
Atlanta, Georgia
Presidio of San Francisco, California
Omaha, Nebraska
Fort Sam Houston, San Antonio, Texas

The War Department loan policy has been extended to include civilian defense agencies and state defense councils.

Number	Title
5-12	Map Reading (2 reels, 43 minutes)
8-33	First Aid (1 reel, 33 minutes)
8-150	First Aid - Part IV - Injuries and Accidents (1 reel, 26 minutes)
11-184	Conduct of Physical Training (1 reel, 20 minutes)
3-216	Adjustment of the Service Gas Mask (1 reel, 17 minutes)
3-217	Inspection of the Service Gas Mask (1 reel, 9 minutes)
3-218	Adjustment of the Training Gas Mask (1 reel, 17 minutes)
3-219	Inspection of the Training Gas Mask (1 reel, 8 minutes)
1-226	Aerial Bombs - Loaded (1 reel, 13 minutes)
8-304	First Aid for Gas Casualties (1 reel, 20 minutes)
11-325	Safeguarding and Proper Handling of Classified Material (1 reel, 18 minutes)
11-551	The Motor Vehicle Driver - Responsibility, Nomenclature, Fire Regulations, Accident Prevention (1 reel, 25 minutes)
11-552	The Motor Vehicle Driver - Road Rules and Regulations (1 reel, 26 minutes)
11-553	The Motor Vehicle Driver - Elementary Driving Instructions and Inspection (1 reel, 25 minutes)
11-554	The Motor Vehicle Driver - Difficult Driving (1 reel, 18 minutes)
11-555	The Motor Vehicle Driver - Traction Aids and The Winch (1 reel, 27 minutes)
11-556	The Motor Vehicle Driver - Map Reading (1 reel, 10 minutes)
11-557	The Motor Vehicle Driver - Night Driving (1 reel, 21 minutes)
11-558	The Motor Vehicle Driver - First Echelon Maintenance (1 reel, 35 minutes)
11-559	The Motor Vehicle Driver - Loading, Trouble Shooting, Reports and Vehicle Abuse (1 reel, 27 minutes)
1-258	Identification of Aircraft - General Characteristics and Types of United States Military Airplanes (1 reel, 8 minutes)
1-259	Identification of Aircraft - Distinguishing Features of U. S. Military Airplanes (1 reel, 15 minutes)

INDUSTRIAL TRAINING

FEDERAL SECURITY AGENCY

Office of Education

The following 16mm sound training motion pictures were developed by the Office of Education. They are distributed on a sales basis by Castle Films, Inc., Rockefeller Plaza, New York, New York (also Chicago, Illinois, and San Francisco, California). Film libraries are encouraged to purchase prints so that they may be made available on a rental basis to interested groups.

Precision Measuring

The Steel Rule
The Micrometer
Fixed Gages
Vernier Scale
Height Gages and Standard Indicators

The Engine Lathe

Rough Turning Between Centers
Turning Work of Two Diameters
Cutting a Taper with Compound Rest and Taper Attachment
Drilling, Boring and Reaming Work Held in Chuck
Cutting an External National Fine Thread

The Milling Machine

The Milling Machine
Cutting a Keyway on End of a Finished Shaft
Straddle and Surface Milling to Close Tolerances
Straddle Milling
Plain Indexing and Cutting a Spur Gear

Vertical Boring Mill

Rough Facing, Turning and Drilling on a Vertical Turret Lathe
Rough Facing and Boring and Turning a Shoulder
Facing, Turning, Boring, Grooving, Chamfering on a Vertical Turret Lathe Using Two Heads

The Shaper

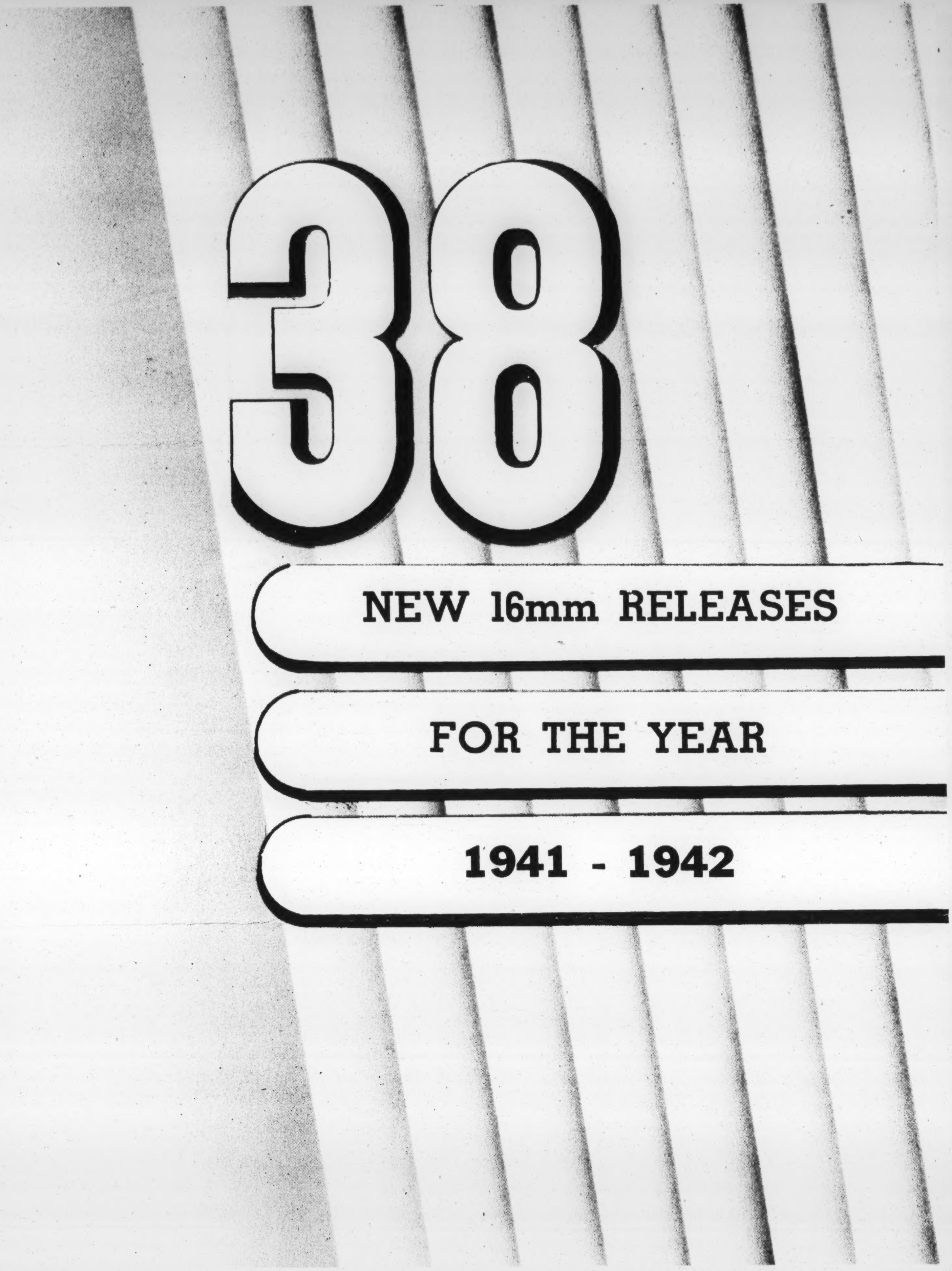
Cutting Keyways
Machining a Rectangular Cast Iron Block

The Shaper (Continued)

Machining a Tool Steel V Block
Drilling and Tapping a Cast Steel Valve Body
Drilling and Spotfacing a Cast Iron Valve Body

Shipbuilding Skills

Preparing and Setting a Keel Block and Bottom Cradle
Innerbottom Section: Sub-Assembly of a Closed Floor Sub-Assembly of a Solid Floor
Innerbottom Section: Setting Up and Fitting Floor
Girders: Setting a Transverse Web Frame and Horn Girder
Bulkhead: Laying Off the Boundary and Stiffeners on a Transverse Watertight Bulkhead
Bulkhead: Laying Off and Fitting a Centerline Stiffener
Bulkhead: Setting a Transverse Watertight Bulkhead Into Hull



38

NEW 16mm RELEASES

FOR THE YEAR

1941 - 1942

PICTORIAL FILMS, Inc. 1650 Broadway, N. Y. C.

PICTORIAL Films INC.

presents

I TAKE *this* OATH

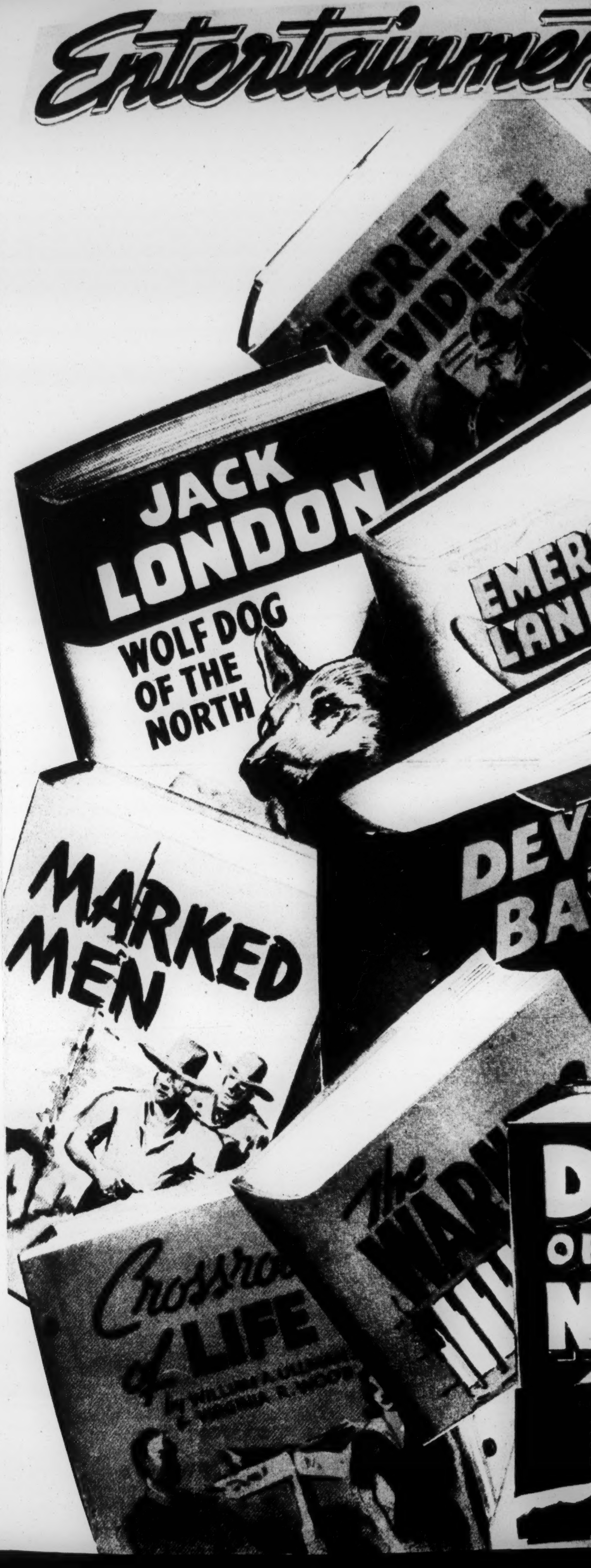
—The first picture in a series of 38 New Star Studded features for the year 1941 - 1942.

Our program consists of:

20 Features:
- Comedies,
- action dramas
- and melodramas

18 Westerns:
- 6 Fighting Marshals, starring Col. Tim McCoy.
- 6 Billy The Kids, starring Bob Steel, the Robin Hood outlaw.
- 6 Lone Riders, starring George Houston, the golden voiced rider of the ranges. (Singing Westerns).

The first picture, I TAKE THIS OATH, is to be released to the non-theatrical market in May, 1941. Thereafter there will be one, two or three pictures ready for release each month. Watch for our monthly release dates and announcements. Plan your program for the whole year with PICTORIAL FILMS.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SECRET EVIDENCE
JACK LONDON
WOLF DOG OF THE NORTH
EMER
LAN
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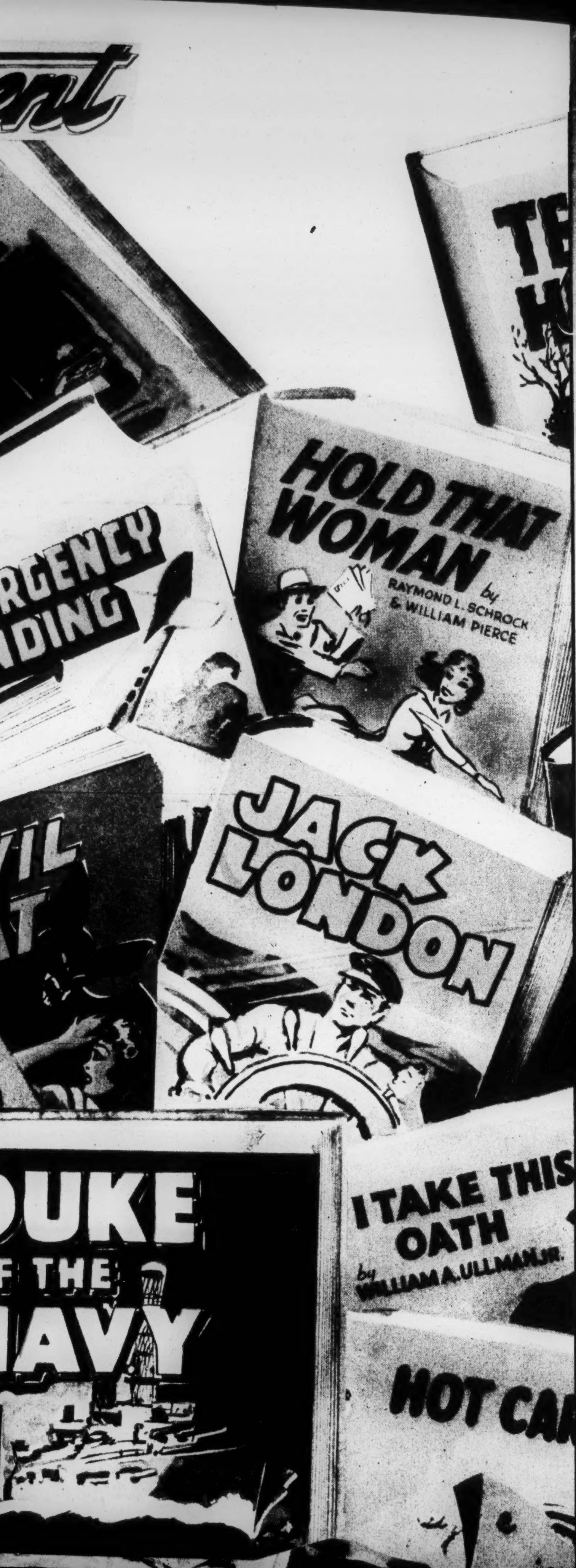
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HOLD THAT WOMAN
by RAYMOND L. SCHROCK & WILLIAM PIERCE
RGENCY
NDING
JACK LONDON
VIL
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UKE
F THE
AVY
I TAKE THIS OATH
by WILLIAM A. ULLMAN, JR.
HOT CA

Our boots-and-spurs Westerns, of which there will be eighteen (18), will epitomize frontier gallantry and courage, and will contain an abundance of the fundamental elements so essential to this type of screen entertainment.

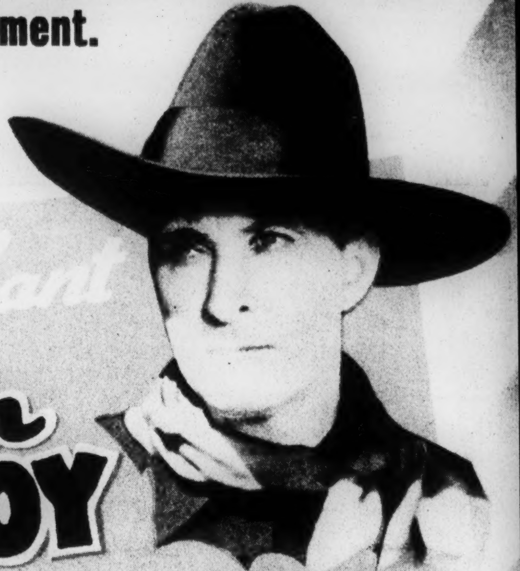
FIGHTING

BOB STEELE

in

6 "Adventures of BILLY THE KID"

The screen's most popular fighting hero, Bob Steele, as "Billy the Kid," the great Southwest's most notorious two-gun personality, whose name and reputation will go down in history as the greatest and most ruthless adventurer ever spawned.



Gallant

Tim McCOY

in

6 "FRONTIER MARSHAL"

WESTERN ACTION TORNADOES

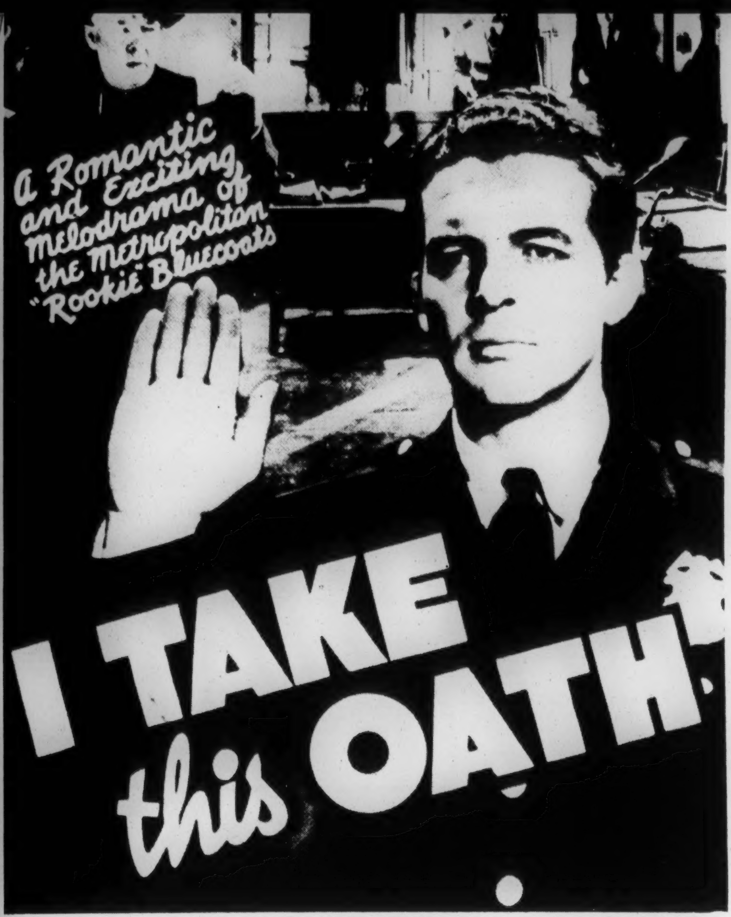
With a star as popular as Tim McCoy in stories that move with lightning speed, that have an abundance of gripping situations, and whirlwind entertainment, this group is definitely first-class box-office.

FIGHTING COURAGE, SUBLIME ROMANCE, SPARKLING HUMOR AGAINST THE GORGEOUS PANORAMA OF THE GLAMOROUS WEST.

6 "THE LONE RIDER"

STARRING GEORGE HOUSTON

HAIR-TRIGGER, HELL-RAISING HAILSTORMS!


A Romantic and Exciting Melodrama of the Metropolitan "Rookie" Bluecoats
I TAKE this OATH

IT'S HARD BOILED
LIFE BEHIND THE SCENES
OF POLICE HEADQUARTERS
AND ITS FIGHT AGAINST
THE RACKETEERS

THUNDEROUSLY MELODRAMATIC

HE CHOSE THE MOST DANGEROUS JOB IN THE POLICE LINEUP AGAINST CRIME!

THE STORY OF A ROOKIE COP
WHOSE DUTY'S CALL WAS A
FAMILY TRADITION

ALL ACCESSORIES AVAILABLE

7 REELS . . . . 63 MIN.

SYNOPSIS

POLICE OFFICER Mike Hannagan is killed by a bomb while tracing a clue to the identity of a "man higher-up" who is in league with crooks. His son Steve, studying for the legal profession, vows vengeance on his father's murderer. Steve's sweetheart, Betty Casey, persuades him to join the police force. He enters the rookie school under the instruction of Captain Casey, formerly his dad's friend. Steve constantly frequents underworld hangouts in the hope of hitting the trail of the thugs he is after. This results in his neglecting his classes in the police school, much to Captain Casey's disappointment. Also, Betty has been running around with Steve's buddy, Joe Kelly.

STEVE GETS the clue he requires, but is dismissed from the police school and deprived of his badge. He believes that Betty has forsaken him for Joe. The big showdown comes when the "man higher-up" turns out to be Joe Kelly's relation, district leader, "Uncle" Jim Kelly. Weary, discouraged and thinking Joe has stolen Betty's affections, Steve accuses Joe not only of being a double-crosser, but of possessing guilty knowledge of the identity of the criminal who plotted and brought about his dad's death. Joe is, however, innocent of the charges. At this juncture "Uncle" Jim Kelly takes an active hand in the game. He decides that Steve must be gotten rid of and delegates his chief lieutenant and killer, "Slade," to the task of eliminating him.

SLADE GOES gunning for Steve and shoots at him. Steve's life is saved by Joe Kelly's self-sacrifice. Joe is fatally wounded when he is hit by the bullet intended for his former buddy. In self-defense Steve shoots down "Uncle" Jim Kelly. The timely arrival of Captain Casey and a squad, with Steve's police badge, justifies Steve's action in slaying Kelly as that of a police officer who has killed a criminal in the performance of his duty. Steve and the dying Joe re-seal their boyhood friendship. Betty's tear-bright eyes are radiant in the anticipation of her immediate marriage to the brave young rookie-cop who has been reinstated in the ranks, and will follow undauntedly in the path once trod by his gallant father.

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features and short subjects
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PICTORIAL Films, INC.
1650 BROADWAY
NEW YORK CITY
Circle 5-7090-1

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF GOVERNMENT REPORTS
WASHINGTON, D. C.

OFFICE OF THE DIRECTOR

June 18, 1941

Miss Mary Anderson, Director,
Women's Bureau,
U.S. Department of Labor,
Washington, D. C.

Dear Miss Anderson:

Your letter of June 13th addressed to Mr. Lowell Mellett concerning a proposed picture, WOMEN IN DEFENSE, has been referred to this office for reply.

We are continuing research work on the general subject of "women in defense" but the production has not yet actually been started by the Office for Emergency Management's motion picture unit. We will keep you advised and as this problem develops somewhat further we will check with you on the theatrical and non-theatrical editions of the picture.

Thank you for writing.

Sincerely yours,

Arch A. Mercey,
SPECIAL ASSISTANT.

2 4

200

UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary
WOMEN'S BUREAU
MARY ANDERSON, Director

British Policies and Methods in Employing Women in Wartime

By
JANET M. HOOKS

Bulletin of the Women's Bureau, No. 200

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1944

For sale by the Superintendent of Documents, U. S. Government Printing Office 25, Washington, D. C.
Price 10 cents

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, May 22, 1944.

MADAM: I have the honor to transmit a report describing the step-by-step development of the British Government's program in the employment of women in the war emergency.

Though Great Britain and the United States differ in such fundamental matters as size and political structure, subjection to bombing and imminence of invasion, there remains close similarity between the two countries in the seriousness of labor shortage, the necessity to resort to inexperienced woman labor, and the difficulties of migration, training, absorption, and maintenance of morale. For this reason the experience of the older country has been, and must continue to be, of the greatest usefulness to the United States.

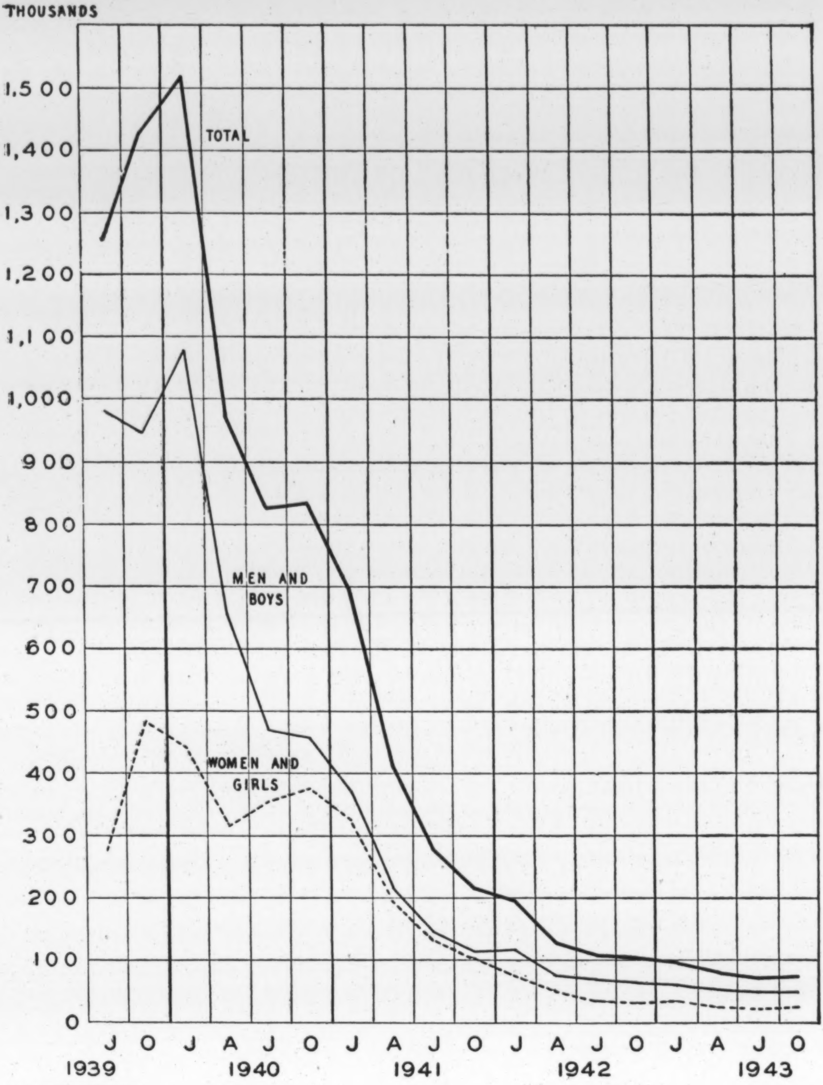
The report is the work of Janet M. Hooks, of the Research Division. The office of Mr. A. McD. Gordon, Labor Attache to the British Embassy, has approved this document.

Respectfully submitted.

MARY ANDERSON, *Director*.

Hon. FRANCES PERKINS,
Secretary of Labor.

CHART 1. NUMBER OF UNEMPLOYED PERSONS ON THE REGISTER OF EMPLOYMENT EXCHANGES, GREAT BRITAIN, BY QUARTERLY PERIOD JULY 1939 TO OCTOBER 1943[1]



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[1] Ministry of Labor Gazette.

British Policies and Methods in Employing Women in Wartime

I. GREAT BRITAIN AND AMERICA—MUTUAL PROBLEMS AND LESSONS

The British program for the mobilization of women into industry and other war services has been planned and carried out on a magnificent scale. The experiences encountered, the difficulties met, the schemes devised, the knowledge developed in the course of this program can be of great assistance in the meeting of various needs and avoiding of many pitfalls in the United States. Along numerous lines much can be learned as to what action has been effective and what methods have proved unsound.

Many of the problems with which authorities wrestle in the United States can be recognized as identical with those of British experience, and since Great Britain has been longer at war, its opportunity to perfect plans to resolve these difficulties has been greater. Such experience and plans include the following, to all of which much attention has been given in Great Britain: Constructive plans for reducing industrial absenteeism and accidents among women; striking rediscovery of the established fact that indefinite lengthening of work hours does not in the end increase production; effective provision of suitably nourishing food in factory confines and in the community, with the no less important provision of adequate time for its consumption; training within the plants; efforts to forestall the undermining of women's health through excessive fatigue from long work hours, family burdens, and war pressures; schemes devised to give adequate community aid to women in their job of homemaking and family care added to factory work and war services; the thorny problems of an equal-pay standard for women on war jobs new to them; devices put into effect for extending the labor force by a utilization of part-time workers; and finally, the constructive plans for the period after the war, which recognize women's needs to a far greater extent than ever before.

Particular emphasis should be given to the place that women themselves took quite early in the planning for women. In recruitment, women from the staff of the Ministry of Labor and National Service were from the first interviewers of women. The Minister of Labor very promptly armed himself with a Women's Advisory Committee, composed of labor women, women members of Parliament, and other women leaders. It was this committee that recommended the conscription of women. Though it was nominally an advisory committee, in practice the advice of this group was never disregarded. Responsible women's groups have been constantly active and in some measure successful in seeing that women are placed in responsible administrative positions having to do with policies affecting women and that avenues of training are created for women or opened to them.

It is true that British authorities do not consider that all the methods tried were sufficient, complete, or even successful. It also is true that because of different situations in the United States certain of the methods used in Great Britain are not suited to application in the United States. For example, Great Britain found necessary the universal compulsory national service of women, preceded by national registration. That country faced a general crisis that has not developed in the United States, and the program in the two countries functioned under quite different circumstances.

In contrast to Great Britain, with about 46 million inhabitants occupying less than 95,000 square miles, the United States has over 132 million people occupying over 3 million square miles, or less than one-tenth the density of the older country. Because of relatively greater mechanization of American industry, productivity per worker is considerably higher than in Great Britain. In Britain labor was the factor of primary importance, and a general labor shortage developed, while in the United States acute shortages were localized. Further, the trade-unions, responsible and accepted organizations in Great Britain, supported the program and helped to administer it. Finally, the air bombardments and the imminence of invasion created a very different psychological atmosphere in England, so that the need for extreme measures was readily accepted by all.

In November 1942 the Management-Labor Policy Committee of the United States, composed of representatives of labor, agriculture, and industrial management, reported to the chairman of the War Manpower Commission that the solution of the Nation's manpower problem should be sought along lines other than compulsory war service legislation. The committee declared that current acute shortages and difficulties were due not to inadequate over-all labor supply, but rather to dislocations, deficiencies in planning and administration, and ineffective manpower utilization.

Attention also should be called to the vast difference between Great Britain and the United States in administrative organization, and hence in the possibilities for a unified development of policies. The British Ministry of Labor and National Service is the central administrative and enforcing body having complete authority for the Crown over recruitment for industry and the armed forces, war production, and all policies having to do with labor. In the United States administration of provisions affecting labor is, for the most part, the specific function of the 48 separate States. Federal authorities in this field have a capacity that is chiefly policy-making and advisory, and the functions dealing with the problems of recruitment, war production, and labor conditions in general at the Federal level are lodged in separate agencies.

This report is based chiefly on various British official and unofficial sources, including publications of the Ministry of Labor and National Service, reports of the House of Commons and of special Parliamentary committees, material furnished by the British Information Services, as well as leading British newspapers, periodicals, and other publications. The Women's Bureau also has received information directly from persons and agencies in England concerned with the mobilization of womanpower or with other aspects of the problems of British women in wartime.

II. MEETING MANPOWER NEEDS THROUGH BETTER UTILIZATION OF WOMANPOWER

Registration of women and their direction into industry, calling up of women by age groups for service with the armed forces, and restriction of the hiring of women to the employment exchanges or certain other agencies—these principles were already well established in Great Britain early in 1942. The period following was characterized by the application and extension of the program. As limits to further recruitment of women were approached, greater attention was focused on better utilization of the labor available by introducing methods to increase productivity, to improve utilization of labor, and to reduce absenteeism and other forms of manpower waste. These included efforts toward better planning for plant health and safety, suitable food, adjustment of work hours, further provision of community services, and other methods.

INSIDE THE FACTORY

Hours of work.

At the outbreak of the war the standard workweek in Great Britain was about 48 hours. Legal limitations affected only women and young persons and special groups of men. For the most part, limitations on hours of work for men were controlled not in the law but by provisions in the collective-bargaining agreements, which established overtime pay at higher rates after 47 or 48 hours.

Numerous investigations made in Great Britain and elsewhere for many years had demonstrated over and over again that while marked extension of hours on occasion increases output for a limited period, continued long hours cause the rate of output to drop. Nevertheless, many of these lessons were disregarded in Great Britain under wartime pressures, with the inevitable result of lessened output through excessively increased worker fatigue. This further striking demonstration of the disastrous effects of overlong work hours is another link in the chain of warnings against any repetition in the United States of similar mistakes.

When the war began, hours restrictions in munitions plants were relaxed, and after the collapse of France they were ignored. The immediate effect of lengthened hours after Dunkirk was an increase in output. But it soon became apparent that production could not be maintained indefinitely at the level then reached. The Minister of Labor reported in March 1941 that hours still were unproductively long in many cases and recommended that maximum hours for women should not exceed 48 to 56, depending on the type of work. At a meeting of production engineers in early 1942 it was agreed that hours in industry were too long and that output per man-hour was not only lower than it could be but deteriorating. In the summer following, hours still exceeded 55 a week for women in two-thirds of the 42 Royal Ordnance factories engaged in engineering. It was not until late in

1942 that practically all these factories (39) had weekly hours of 55 or less for women.

General British policy as to hours in wartime was that exceptions to the Factories Act of 1937, where necessary, should be made only in a regularized fashion and on an individual-firm basis, principles still largely adhered to at the beginning of 1944. An emergency order covering workers in engineering, metal, motor vehicle, aircraft, tool making, electrical cable, wire rope, and shipbuilding firms allowed the District Inspector of Factories after investigation to authorize special schedules for women up to a maximum of 60 hours. Another emergency order applying to industry in general allowed increased hours for women if special permission were obtained, up to a maximum of 55. In addition, individual orders allowing slight variations were obtainable directly from the Ministry of Labor headquarters.

Emergency permissions applying to both women and young persons increased as the war continued. At the end of 1940 they were in effect in 6,500 establishments, at the end of 1941 in 11,000, and at the end of 1942 in 19,000. The Minister of Labor stated, however, that the hours authorized often were shorter than could be worked under exceptions to the ordinary law permissible for limited periods.

Much evidence developed during the war to show that excessive hours had detrimental effects on health, accident rates, absenteeism, and turnover. From the point of view of optimum war production, moreover, British experience repeatedly demonstrated that hours should not be too long. For example, in a group of 115 women employed chiefly in mechanized work, though production increased by 26 percent in the first week in June 1940 when the hours were increased from 56 to 69½ a week, it showed an almost immediate drop below that peak. The increase was only 15 percent in the next week and 11 percent in the following 2 weeks. About 5 months later, when a steady relation between output and hours appeared to have been reached, output was practically the same as in the pre-Dunkirk period, despite the fact that hours were longer by almost one-fourth. In another instance, women's hourly production rate on lathe work, cable work, and coil winding was 106 when they worked a 2-shift system averaging 41¼ hours a week, in contrast to an hourly output of only 94 when they worked a straight 48½-hour week.

The increased use of women in war production intensified the problems of hours of work, since this question is of especially great importance where women are concerned. During an investigation by Mass-Observation, an independent research agency, workers were asked what improvements they would like in their own jobs. Changes or reductions in hours were mentioned spontaneously by 14 percent of the women but only 3 percent of the men. The double job in home and factory carried by many women made the problem a critical one for them.

One of the most noted British authorities concluded that close following of the Factories Act, which provides for a normal working week of 48 hours, with 54 hours for a maximum of 25 weeks a year, would not reduce output and would lessen absenteeism.

Part-time work.

About 700,000 women were doing part-time war work in Great Britain by the fall of 1943. Efforts to promote the use of part-time workers, which became a feature in manpower planning during 1942, increased as the reserves of full-time labor became depleted. In this way many women were able to participate in war production whose domestic responsibilities would not permit them to engage in full-time work.

An indication of the possible effect on output of part-time work was reported by an aircraft factory with a carefully planned and highly successful scheme. On one operation the output of part-time women was nearly one-third above that of full-time men in the same length of time. On another operation the average output for part-time workers was 3.3 units an hour compared to 1.75 for full-time women. Absenteeism in 1 month was 5.5 percent of planned hours for part-time women compared to 17.5 percent for full-time women.

Jobs best suited to part-time work proved to be those that could be completed in one part-time shift (most commonly a half day), those not affecting the general rate of production, and those that were clean and light. However, operations not completed in a half day worked out satisfactorily when containers were provided to store uncompleted work or when workers were assigned in pairs. Further, in some cases it was found that monotonous or heavy operations were better suited to part-time than to full-time women workers. For example, the conditions in which women produced air screws, which were processed under heat, led to a big drop in output after 5 or 6 hours, while the substitution of part-time workers on 4-hour shifts resulted in an increase in the output over 8 hours.

Among the plants that employed part-time women were producers of electrical products, air frames, chemicals, ammunition and explosives, rubber goods, optical instruments, iron and steel, food products, clothing, textiles, leather, glass, paper, medical supplies, and many other commodities. Jobs done in engineering and aircraft on a part-time basis included machine operations, fitting and assembly, inspection, light laboring, crane driving, timekeeping, and a variety of others. Women were employed successfully on a part-time basis not only in manufacturing but in clerical work, retail trade, essential domestic work in institutions, transportation, and agriculture.

The greatest hindrance to the expansion of part-time work was the reluctance of employers to undertake such schemes. A number of factors had to be considered. It was found desirable to have hours schedules suited to the home responsibilities of the part-timers and to employ those living near the plant. For the most part, pay rates were at the standard scale for full-time workers. However, one employer found that it was better to pay somewhat above the full-time rate to compensate for the time and effort involved, particularly since the part-time workers were not eligible for bonus and overtime scales. While it was difficult to get employers to install part-time work, those who did so and who took the trouble to observe certain basic principles in setting up a scheme usually found a readily available and enthusiastic labor supply. A Birmingham firm, for example, that advertised part-time factory work with an appeal to patriotism obtained an immediate response from 1,600 applicants.

Special arrangements were made by the Government to forestall some of the difficulties facing part-time workers. Part-time workers employed for not more than 30 hours a week on jobs not normally part-time work were excused from unemployment insurance contributions, though health and pension premiums were still payable. Certain exemptions of married women's earnings from income tax served to encourage married women to take part-time work.

Regulations of May 1943 gave the Minister of Labor the power to direct women into part-time work and brought such workers under the control of the employment exchanges. Women with children of their own under 14 living with them were not to be directed into part-time work, and no women were to be assigned to part-time work beyond a reasonable traveling distance from home.

Where, in spite of the development of part-time work, firms still were unable to meet their labor requirements, they were encouraged to try "outworking" schemes. Outwork was carried on preferably as a group activity, on a part-time basis. Regional offices of the Ministry of Production coordinated outwork schemes and suggested suitable operations. The Ministry pointed out in a pamphlet on the subject that outworking would not be encouraged in areas where the labor market was especially tight and that the general use of such schemes was not to be substituted as preferable to part-time work in nearby factories. Types of work included the assembly in a village outwork center of four-cylinder air-cooled engines. Outwork was developed mainly in rural areas, but of the same general character was the plan under which several aircraft firms set up branch establishments in London suburbs to bring the work to the workers. It was hoped that 2,000 to 3,000 part-time women who did not live within reasonable distance of factories would volunteer to do simple assembly work at these branches.

Attention to safety and health.

In general, British factory inspectors concluded that women were safer workers than men, though they were reported to be more liable than men to certain types of accidents, such as those due to hair or clothing catching. The Minister of Labor repeatedly stressed the importance of guarding machinery, pointing out that some of the most serious accidents to women were due to lack of proper guarding.

The great increases in numbers of women workers, as well as their inexperience in the war industries in which they were employed under especially difficult conditions, led to a notable rise in accidents. Further, women's jobs were increasingly in the heavy and more dangerous processes, a development that contributed in considerable degree to the rising accident rate. Over three-fourths of the total increase in accidents to women from 1938 to 1942 occurred in five major war industries: Heavy metals, engineering, machinery, light metals, and aircraft. Women's accidents in these five fields numbered nearly 47,000 in 1942, in contrast to fewer than 3,000 in 1938. Women in British factories experienced over 71,000 accidents in 1942, one and two-thirds times the number in 1941 and nearly five times those in the prewar year of 1938.

Sickness absence, on the other hand, generally was higher among women than among men. The importance of the health of women workers to sustained national production was recognized in 1942 by the Select Committee on National Expenditure (originally appointed in

1939–40 to examine expenditures for war purposes) in a report on their health and welfare in war plants. Pointing out that little attention seemed to be paid either to constructive suggestions in technical reports or to results of experience, the committee stated that—

> * * * There is still a heavy and often quite unnecessary loss of working time through the neglect, not only of the special needs of women but of elementary rules of health and welfare.
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> * * * * * * *
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> Many of the problems arising in Royal Ordnance Filling Factories today were exhaustively dealt with in a report on a Scottish filling factory issued toward the end of the last war, and yet there are no obvious signs that, when the factories required in this war were being brought into production, those responsible had assimilated and profited by the results of earlier experience.

Factory medical and welfare arrangements were fostered by an order issued in July 1940. In 1942 personnel available for medical supervision in industry included several thousand State registered nurses in industry, 150 whole-time and 582 part-time doctors employed by factories, and nearly 2,000 factory surgeons appointed by the Government to examine on a fee basis juveniles and workers in hazardous processes.

A point of special interest was brought out by British experience in regard to the use of women on heavy work. From a survey of heavy industries such as iron and steel, chemicals, and shipbuilding, the Ministry of Labor concluded that no different standards of health need be set up for women, though adequate facilities were essential, stating:

> It is considered that a normally healthy woman can undertake any of the jobs which have been designated as suitable for women, subject to special selection having to be made in cases where a woman is to be employed on particularly heavy work.

Feeding the worker.

By mid-1943, works canteens were serving over 51 million meals a week, compared to about 16½ million in 1941. According to an order issued in November 1940, any factory with more than 250 employees could be required to install a canteen if engaged on munitions or Government work, and after April 1943 the order applied to all plants of this size. Canteens were reported operating or being built in 98 percent of the plants subject to the order. Compulsion was used in comparatively few cases, though the number of canteens grew from relatively few before 1940, and confined to very large plants, to a total of over 10,000 three years later. Many of these plants voluntarily set up canteens, recognizing their value to efficient production. The effect on absenteeism was indicated by the experience of a small plant in which the highest number of absentees was 5 after the canteen was installed, compared to an average of 20 before that. Factory canteen advisers were appointed in the Ministry of Labor to advise employers on canteen management, lay-out, and nutrition.

The official investigation into the conditions affecting women in war factories indicated that in some instances not enough time was allowed for the meal period, with the result that girls either bolted their food or continued to eat at their machines. The report pointed out that despite the great progress in the development of canteens, further action should be taken to eliminate short meal periods, to prepare fresh meals instead of warming over food for the night shift, and to have the canteen open so that workers might have a hot drink on arriving, especially if coming any distance.

One of the difficulties in establishing canteens in war plants was the shortage of staff. An important factor was the discontent and turn-over that arose as kitchen hands and cooks, paid in some cases 8d. to 11d. an hour, learned that the women they served earned considerably more.

More than nine-tenths of the individual factories in Great Britain had not more than 250 workers and so were not subject to the Canteens Order. These plants together employed over half of all the workers. Some of these smaller plants established canteens voluntarily, but in general their workers were without eating facilities except as they depended on the "British Restaurants." These public restaurants, sponsored by the local authorities but run on a self-supporting basis and patronized by whole families, in 1943 numbered over 2,100 and served some 615,000 meals a day.

Restaurant eating had not been general in Great Britain before the war, but wartime conditions, the employment of the housewife, long hours, transportation problems, rationing, and split families created a need that the commercial establishments could not fill. Thus, where a British Restaurant existed, the woman worker in a small plant not only obtained the extra ration provided the worker with a canteen available, but in many cases was saved the double job of a long day in the plant followed by preparing meals and otherwise caring for the family. Meals in these restaurants, served cafeteria fashion, usually cost from 10d. to 1s. A survey of diners in London restaurants demonstrated the great popularity of the system and the real need it filled. A considerable proportion had previously depended on a sandwich lunch. Of those who formerly ate at home, a large proportion were women going out to work for the first time. Many of the patrons had become regular customers, in some cases as high as 80 or 90 percent. In some of the smaller villages "Cash and Carry" British Restaurants were set up, where food was cooked and sold, perhaps twice a week, for reheating at home. The more extensive development of such schemes should prove extremely valuable in the United States.

Training women workers.

It was recognized early in the war that much the greatest part of the training of women workers would have to be done within the factory through plant schemes or through training on the job. Where the best methods were used, careful selection was followed by training based on principles of time and motion study and of educational psychology. However, some employers considered women suited only to the least skilled, most routine jobs, and planned little training for them. The Ministry of Labor emphasized the importance of a well-organized training scheme in a manual issued in July 1943, focused toward in-plant instruction on production processes. The booklet recommended the appointment of a general supervisor of training, who should be given sufficient authority and standing, and suggested that a woman might well be desirable for this work where large numbers of women workers were to be trained. Further, according to the manual, women instructors might be particularly suitable, especially if women constituted most of the trainees. Other matters requiring attention included the equipment necessary, the content of the training course, the selection and follow-up of trainees, and the general arrangements necessary to insure the well-being of the workers.

At the Government training centers over a quarter of a million men and women had completed training courses for the engineering industries alone by July 1943. Trainees were paid during the course, women receiving 50s. a week with a maximum of 54s. if they passed various tests, men receiving from 71s. 6d. to 77s. 6d. While progress was made in adapting training to the needs of particular plants, in some cases women completing courses were reported to be placed in jobs requiring quite different training or no training at all.

In other cases, however, women with training were placed in skilled work. Jobs of women trained at Government centers included: Charge-hand fitter at a firm engaged on experimental work of high precision; electrician at an aerodrome; welder of marine-engine bedplates; electrical inspector on final assembly and testing of predictors; marking out castings in a foundry; center lathe turner and supervisor for women; toolroom fitter; instructor in firm school for the training of women. Women demonstrators from the Government training centers were sent out to plants to demonstrate the degree of skill that women could reach or to encourage women workers to undertake certain types of work. One such demonstrator, during 9 weeks with a firm, trained 14 women setters in operations on 6-pounder shells and mine fuses.

Training courses to prepare women for technical and supervisory work were set up in May 1939 by the Women's Engineering Society and later integrated with the Government schemes in technical colleges and in training centers. The foremanship lectures organized by the Government in December 1941 were opened to women as well as men. Subsequently courses were set up especially for women supervisors. These lasted 30 hours and were held outside of working hours for women already employed in war industries. Though women supervisors had been used extensively in the war of 1914–18 and in peacetime in woman-employing industries, the Association of Supervisory Staffs and Technical Engineers admitted women for the first time only as late as June 1942. Specialized training was organized for institution cooks, industrial nurses, nursery-school workers, factory-personnel managers, and welfare supervisors.

OUTSIDE THE FACTORY

Optimum war production with the fewest problems would be most readily attainable by mobilizing what has been described as "a population consisting solely of childless, single, sexless persons between the ages of 18 and 50 * * *"—in short, robots. Actually, however, those to be mobilized are human beings with individual problems and responsibilities. This fact led to the appointment of welfare officers in the Ministry of Labor with the important function of developing means to meet the special needs that arose out of the recruitment and transfer of women. Thus the British Government recognized that the community would have to provide some of the domestic services usually performed by women outside the labor market. Through appropriate community agencies the local welfare officers (numbering 100 in August 1942) arranged to secure satisfactory lodgings, meals, transport, recreation, child care, shopping facilities, and other necessities.

Even at best many women carried a heavy load. With but one job the hours and conditions of work in war factories, though burdensome, were not considered generally injurious to health. But for many women the hours in the factory did not end the day's work. The Parliamentary investigation into the health and welfare of women in war factories showed that the long hours and the difficulties in dealing with domestic problems were together causing a great deal of absenteeism, turn-over, and general deterioration in health among women.

The relation of absenteeism to hours of work appeared in the experience of Government filling factories. When hours were limited in the latter part of 1942, the absence rate dropped from 12 to 6.6 percent for men and from 23.5 to 14.6 percent for women.

A study of the amount and distribution of absenteeism among women in two war plants in 1943 showed that few women habitually lost time. Younger women lost more time than older women, those traveling over an hour to work more than those within an hour's trip, and married women more than single women. In a 6-week period, 88 percent of the married women in one plant and 76 percent of those in the other plant were absent at some time, compared to 82 and 63 percent, respectively, of the single women. Absenteeism among married women was especially heavy on Saturday mornings, 46 percent of the married women in contrast to 30 percent of the single women missing that shift. However, investigators of the Ministry of Labor pointed out the great efforts and sacrifices made by many such war workers, emphasizing the fact that—

> * * * A married woman with a house, a husband, and children already has a full-time job which is difficult to carry out in these days. Yet thousands of them are working long hours in factories. They are trying to do two full-time jobs. If they can carry on with a mere half day per week off the ordinary factory hours they are achieving something marvelous. It is time somebody said more about women's efforts on these lines, and more about the arrangements which ought to be made to enable them to carry on * * *.

Turn-over among women workers as a whole was reported to average 0.8 per 100 employees a week, or 42 a year. Nearly two-thirds of the turn-over was ascribed to changed circumstances in home responsibilities plus medical reasons (exclusive of pregnancy).

One solution, as already discussed, was sought in arrangements for more workers on a part-time basis. Another line of action consisted of increased attention to the reorganization of domestic responsibilities, to replace the system prevailing early in the war effort "by which each private individual behaves according to opportunity and temperament, and persons with easy jobs and short hours enjoy appreciable advantages over those working in heavier jobs, who are also more likely to need good diet and rest when not working." Some of the methods by which it was sought to assist women war workers are described in the pages following.

Shopping arrangements.

Shopping remained a difficult problem for the woman with a war job; in fact, it was considered by both management and workers to be the most serious day-by-day difficulty facing the working woman. In a number of localities conferences were held to plan various measures for meeting the problem.

The most satisfactory solution was considered to be granting time off for shopping. In some plants one afternoon a week was permitted, or shorter periods two or more times a week. Relief workers were supplied to take over as the regular employees went off for their shopping time. An increasing number of individual firms took steps to meet the situation. Measures adopted included the following:

1. A camouflage firm allowed all women time off at 11 o'clock on Saturday with permission.
2. In one factory any workers asking permission could have a half hour in a week, on the firm's time, immediately before the lunch period, thus giving a consecutive hour and a half.
3. A Scottish factory brought about a drop in absenteeism by introducing "official shoppers," who collected ration books and orders from the workers and then did the shopping.
4. A large air-frame works provided special shopping facilities and a hairdressing establishment on the premises.

In some areas stores remained open later than normal to allow workers to shop in the evening. This did not always prove successful. Among the factors that were found to determine the value of such schemes were the type of area (whether industrial or residential), the degree of approval by store employees (based on readjustment of their hours to allow equivalent time off), and the length of the extra period in specific circumstances (one night for several hours as compared with several nights for a shorter period). In one case the Ministry of Labor [1] refused to support the proposal for late closing, stating that women in the area were already working excessive hours and that arrangements should be made by employers to give them (factory women) time off during the day.

In certain sections special certificate schemes were adopted. Some of these, issued by the factory by agreement with the retailer, enabled the holder to leave an order on the way to work, to be picked up at the end of day or after store hours. The retailers agreed to apportion a share of the unrationed goods to these workers. Other certificate schemes allowed a friend of the working woman to do her shopping and obtain for her a share of the unrationed goods. Least successful of all were the schemes that gave the certificate holder the right to be served before those waiting in line.

Transferring women workers away from home.

The construction of new war plants, concentration of civilian industries, and similar factors made it necessary to move persons from localities where labor was not required to others where shortages arose. Areas of war industry to which mobile women workers were transferred in 1942 included the Northwest Region, site of new large aircraft plants as well as of diversified manufactures centering in Manchester; the Midlands, around Birmingham and Coventry; and the Southwest Region, with headquarters at Bristol. Each of these areas was fed from other designated areas. (See map on p. 12.)

Revisions in production schedules in the fall of 1943 intensified the problems connected with transferring women workers, some of whom

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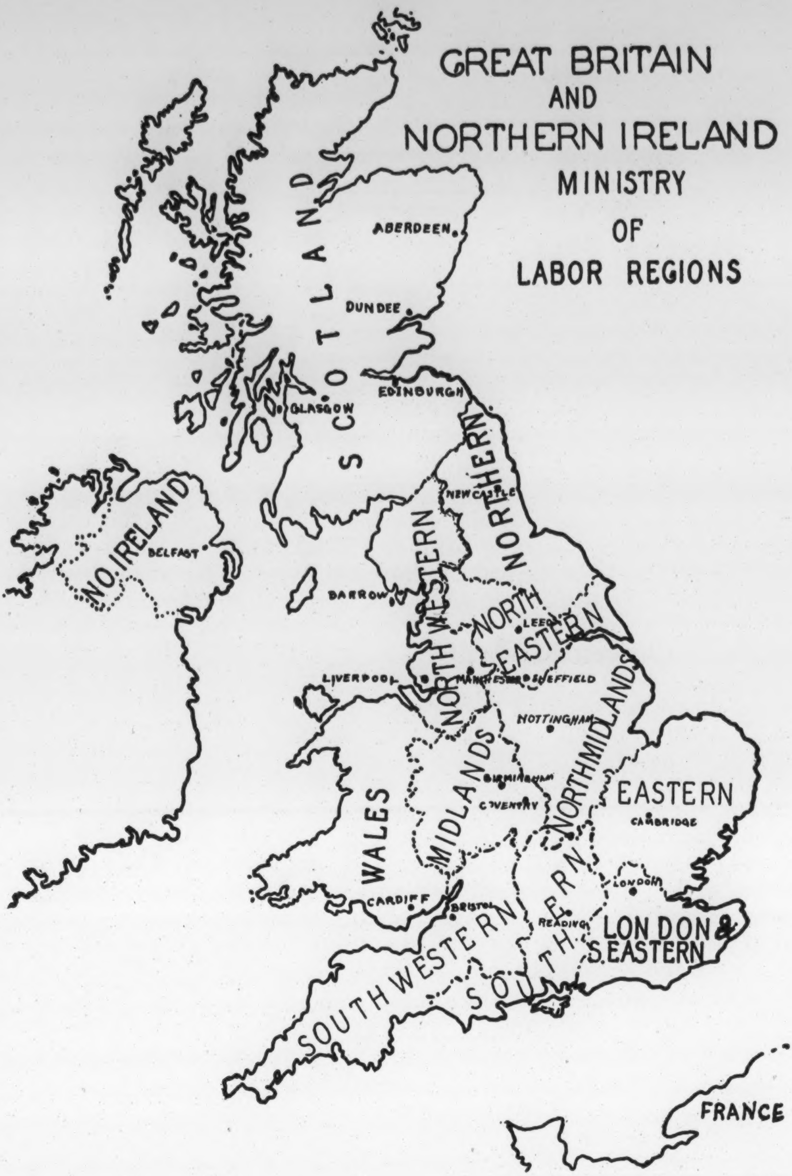
[1] It should be noted that the problem of a singly controlling Ministry of Labor is considerably less complex than a situation made up of 48 separate States having jurisdiction in matters of this sort, with the central Government agency functioning chiefly in an advisory capacity.


GREAT BRITAIN
AND
NORTHERN IRELAND
MINISTRY
OF
LABOR REGIONS
SCOTLAND
ABERDEEN
DUNDEE
EDINBURGH
GLASGOW
NO. IRELAND
BELFAST
NORTHERN
NEWCASTLE
NORTH WESTERN
BARROW
NORTH EASTERN
LEEDS
LIVERPOOL
MANCHESTER
SHEFFIELD
NORTH WESTERN
NOTTINGHAM
NORTH MIDLANDS
MIDLANDS
BIRMINGHAM
COVENTRY
WALES
EASTERN
CAMBRIDGE
LONDON
CARDIFF
BRISTOL
READING
LONDON & S. EASTERN
SOUTHERN
SOUTH WESTERN
FRANCE

were leaving home for the first time and doing so under particularly difficult conditions. During the period from May 1942 to August 1943, the employment exchanges of three regions alone had transferred 11,096 women to other areas as follows:

Region	*Number of women transferred to other areas*
Northern Region	5, 494
Scotland	3, 652
Wales	1, 950

Since the women moved to a new job at the request of the employment exchange, the expense of transferring was borne by the Government. This included a free travel warrant to the new locality, payment for traveling time (if the employer did not pay wages for period of the journey), and a settling-in allowance. If responsible for the support of dependent parents or other relatives, an unmarried transferred woman was allowed a lodging grant in cases where a separate home was maintained, or moving expenses if a place was found in the new locality for these dependents. During the first week workers were permitted to borrow up to £1 from the exchange, to be repaid out of the first week's wages. Arrangements were made for transferred workers who became ill to be cared for by the district nurses or in emergency hospitals established by the Ministry of Health.

In addition, the Government recognized the value to the transferred industrial worker, as to the soldier, of an occasional visit home. In 1942 and 1943 travel warrants were made available to war workers transferred since June 1940. These warrants entitled the worker to a railway ticket at 7s. 6d. in all cases where the fare home would exceed this amount.

Lodging transferred women.

The transfer by the Government of these thousands of women to take jobs away from home placed a particular responsibility on the Government to see that suitable facilities were available for their lodging and care. The problem of lodging women assigned to work in munitions plants that were built in open country was met in many cases through hostels or dormitories. Most women not working near home, however, were provided for through billets or lodgings. The trend into billets began in the first year of the war with the evacuation program. As war plants increased production, the returning evacuees together with additional war workers sought living quarters. The population in some towns jumped by 25 percent, in some by as much as 50 percent. Crowded conditions in war centers were accentuated by the destruction through bombing of housing facilities. It has been estimated that one house in every five was damaged in the air raids. In addition, normal building, which would have added some 1¼ million houses, was stopped by the war conditions.

In 1943 approximately a million persons were living in lodgings. Problems that became acute in crowded areas included: (1) Excessive charges, (2) difficulties on the part of the individual in finding billets, (3) bad conditions in many billets, and (4) personal friction between landlady and lodgers. Efforts by the welfare officers, voluntary organizations, and industrial firms gradually helped to lessen some of the difficulties. Many individual employers found it to their advantage to locate billets for newly arriving workers and to provide recreation for transferees. One firm provided a club for transferred workers, with lounge, laundry, sewing room, and kitchen, as well as bedrooms. In another case a country house was turned into quarters for 20 to 30 girls and a social center was developed in the nearest town.

In some 16,590 cases where billets were not available on a voluntary basis, the local councils, delegated by the Ministry of Health, compelled the taking of lodgers by householders who could give no adequate reason for failure to rent their extra rooms. In such rooms the

Government provided minimum facilities of bed and two blankets, and access to water was requested from the householder. The latter received 5 shillings a week from the Government, which was deducted from the worker's wages.

About 60,000 men and women workers were housed in hostel accommodations in 1943. These included dormitories connected with the Royal Ordnance Factories and with other industrial plants, as well as those for agricultural workers. Hostels connected with industrial plants ordinarily accommodated 500 to 1,000 persons, the facilities including lounges, baths, laundries, dining halls, game and reading rooms, infirmary, and central assembly hall. Typical hostels might have about 10 or 20 sleeping units, with some 50 or 100 beds in each unit and bathrooms in the center of each building. Royal Ordnance Factory hostels usually were managed by such nonprofit organizations as the Y. M. C. A. or the Y. W. C. A., while the other 58 industrial-plant hostels were operated by the National Service Hostels Corporation, a private nonprofit venture sponsored by the Government. The distance from town and the lack of privacy in some of the hostels contributed to delay in filling the available places. The excellent architecture and the recreational opportunities in the better hostels, however, served to overcome much of the original prejudice against them.

Child care.

Though married women responsible for children under 14 were exempted from direction into industry, many of them took jobs for economic and patriotic reasons. Over half a million mothers of children under 14 were employed full time by November 1942, and another 150,000 held part-time jobs.

Most women arranged to have a relative or neighbor look after the children, but by early 1943 there were some 235,000 children cared for by various Government schemes. These included 101,600 children accommodated in 1,436 (operating or planned) whole-time and 1,132 part-time nurseries, 113,000 children under 5 in ordinary public elementary school classes, 7,000 cared for by the Registered Daily Guardian scheme, and 13,000 in 415 residential nurseries evacuated from target areas.

As a rule, arrangements for the care of 40 children were expected to free about 30 mothers and to require a staff of 8 to 10. Thus a net gain in womanpower resulted. Ordinarily working mothers paid a nominal charge of about 1 shilling a day for all-day care, including meals, in a wartime nursery.

Difficulties expressed by women with children included the facts that distance from home or work of existing and planned nurseries was too great, that waiting lists were long, that nursery hours did not coincide with factory schedules, that sanitary conditions were poor, and that provision for older children outside of school hours was lacking.

Holidays, rest breaks, and recreation.

Before the war the British had progressed a long way toward the ideal of an annual holiday with pay for every worker. The Holidays With Pay Act of July 1938 permitted minimum-wage orders to include arrangements for paid holidays. By 1942 some 12 to 13½ million workers were entitled to paid holidays. About half of these were covered by collective agreements, another third received grants of holidays from individual firms, and the rest were covered by Trade Board and Agricultural Wages Board Orders.

Under the tremendous pressure for "getting on with the war" during 1940, holidays were largely omitted. After careful study, the Committee on Workers' Holidays recommended that the annual holiday be resumed. In 1941 the Government announced that the annual summer week's holiday should be observed as a means to efficiency in war production, though, in general, vacations should be staggered over the year and should not involve travel. Observance of the annual vacation and the usual legal holidays was recommended by the Government in the 2 years following, in 1943 on the basis that "the war is in its fourth year and that consequently the need for reasonable holiday breaks will be even greater than in previous years, if maximum health and efficiency are to be maintained * * *."

Another type of project was the "rest break" for women workers, designed to prevent illness or break-down due to fatigue. Individual women recommended by the factory medical department were sent to "Rest Break" hostels in pleasant surroundings for a week or two. So valuable was the program felt to be that the Government gave assistance, if needed, to schemes promoted by the Rest Breaks National Advisory Committee.

Recreation programs were instituted, some centering in the factory, others in the industrial hostels or in clubs organized for transferred women workers living in lodgings. Recreation might be sponsored by the plant, by voluntary organizations, or by Government-aided organizations such as ENSA (Entertainments National Service Association), CEMA (Council for the Encouragement of Music and the Arts), and the Central Council of Recreative Physical Training.

Laundry services.

The entry of great numbers of women into war work accentuated the need for commercial laundry service for work commonly performed at home. Requirements of the armed forces and workers transferred to war-production centers pressed heavily on the facilities available. Before the war there were about 155,000 insured workers in laundries, about 80 percent of them women. Wartime figures indicated that the industry, which was rated as essential civilian service, had about 190,000 workers.

Application of the Essential Work Order of March 1941 to laundry establishments involved freezing workers in their jobs, guaranty of a minimum wage, and improvement of working conditions. In addition, prices to consumers were regulated and services were limited. The Government supplemented the commercial laundries by providing public wash houses and "mobile laundries" for use in emergencies.

III. HOW THE PROGRAM TO MOBILIZE BRITISH WOMANPOWER WAS CARRIED OUT

THE CHANGE FROM PERSUASION TO COMPULSION

It was not until acute labor shortages became general that compulsory measures to mobilize women were accepted as necessary. At first only voluntary appeals were made to women, and employment matters were left chiefly to their own course. In the first stages of conversion to war production there was large-scale unemployment of women. However, new war factories entered actual production at the same time that the available reserve of unemployed persons was reduced to a low level. With a total population of only about 46 million, the British were attempting to muster and equip an army of 4 million at the end of 1940. The way to meet the pressing labor needs was prepared by reducing to a minimum all production not essential to the war or to vital civilian needs and by enacting a legal basis for the wider emergency powers of the Government. Only after these steps had been taken was compulsory mobilization of women introduced.

Taking up the slack in employment.

Before the war, women's employment was to a large extent in consumption industries; hence women workers in Great Britain were affected greatly by the shift from nonessential to war production, and large numbers of them lost their jobs in the earlier period of conversion. Evacuation from the cities also swelled the numbers of unemployed women, since they were not always able to obtain work at the new residence.

Unemployment data show that the adverse effects of readjustment to war production fell particularly heavily on women. In September 1939 there were in Great Britain nearly 175,000 more women unemployed, but 75,750 fewer men unemployed, than in the preceding month. Further, though total unemployment dropped below the August 1939 figure by March 1940, women's unemployment did not fall below that of August 1939 until February 1941, just before the month when the Government began to register the supply of woman labor. During most of 1941 women's unemployment was about the same as men's, though many more men than women were in the labor force. In October 1943 only 73,936 persons were registered as unemployed (of whom 24,127 were women), contrasted with the wartime peak of just over 1½ million in early 1940. (See table 1, appendix B, and frontispiece.)

Effecting industrial concentration.

To a considerable extent, production of war matériel placed demands on the heavy industries, in which men customarily formed most of the work force. Products were less in demand in a number of industries in which women constituted large proportions of the workers. Accordingly, during the last half of 1940 schemes for transfer of operatives to munitions and other war industries on a voluntary basis were set up in the cotton industry, the printing-machinery trades, coal mining, boots and shoes, and hosiery.

Early in 1941 the Board of Trade began to establish the amount of reduction for each "nonessential" industry and to recommend a method to insure orderly and systematic release of plants and of labor to munitions industries. Some firms were closed, and the production for the industry was concentrated in certain "nucleus" firms. The release of labor was to be adjusted to needs of the war industries, and workers released were to be of an adaptable type. "Nucleus" firms were to be generally in nonmunitions areas, so as not to tax the labor supply and facilities essential to the war industries, and were to take on older workers of closed firms so that the younger workers would be available for war industries.

Formal schemes of concentration were adopted in many of the industries affected by the shift to war production. Contraction occurred in firms covered by the Limitations of Supplies Orders, which therefore could not obtain raw material sufficient for full operation. Among them were manufacturers of pottery, blown glass, hosiery, lace, gloves, perfumery, carpets, toys, cutlery, jewelry, silver and electroplate, light leather goods, corsets, suspenders, sports goods, fancy goods of plastic, photographic goods, mechanical lighters, combs, linoleum, lighting fittings, musical instruments, pens, and pencils. Curtailed operations resulted also in plants subject to raw material control, including cotton, woolen and worsted, paper, boots and shoes, linen, silk.

The various concentration schemes particularly affected women. Of nearly a quarter of a million workers released from concentrated industries through April 1, 1942, about 84 percent were connected with five industries, all of them largely woman-employing. In these, the proportions of women before the war ranged from two in every five in boots and shoes to three in every four in hosiery, as appears in the following:

Industry	*Numbers of workers released* [1]	*Percent women were of total before the war* [2]
Total	225,600	----
Cotton	117,000	65.5
Hosiery	37,000	76.9
Boots and shoes	14,800	40.9
Carpets	10,000	59.1
Wool	10,000	57.5
Other industries	36,800	----

[1] British Information Services, "Concentration of Consumer Industries and Trade in Britain," revised January 1943, p. 7.

[2] Ministry of Labor Gazette, December 1939, p. 418. Based on estimated number of insured persons of 16 to 64, July 1939.

In actual practice the schemes supplied less new labor than was anticipated, since considerable loss occurred in making transfers. The release of a specified number of women did not add the same number to munitions manufacture. Some workers thrown out of employment were lost sight of altogether, some remained jobless or drifted into occupations other than munitions, and many eventually filtered back to their original employment. Such was particularly true in the cotton industry, where a large number of married women were employed. In the Northwest Region, the leading cotton-textile area of the country, 80 percent of the operatives were women and 50 to 60 percent of these were married and consequently immobile. The problem was brought out in a reference in Parliament in September 1941 to 1,182 women cotton weavers displaced by concentration and registered as unemployed. Most of these were women over 40 unable to leave home because of domestic responsibilities and unsuited to vital war work involving night duty.

Adopting a legal basis for compulsion.

The growing crisis that preceded the Dunkirk evacuation in June 1940 led the British Cabinet to resign. The new Government requested powers still more vast than those embodied in the emergency legislation adopted at the outbreak of war. The new law extended the earlier act to include control over individual persons and property as well as continuing the act for another year.

By Regulation 58A, which was among the regulations adopted simultaneously, the power to order any person to perform any service within his capacity was vested in the Minister of Labor and National Service. He might also require persons to register themselves and, by a later amendment, might freeze individuals in their jobs.

As the Government assumed increasing powers of control over workers, it also assumed greater responsibility for guaranties and standards of employment for these workers. Thus, on the one hand the Minister of Labor had the power "to direct any person in the United Kingdom to perform such services" as he might direct, while on the other hand he was to order such service only on terms usual in the industry under trade-union agreements or prevailing among good employers. Likewise, though the Minister was given the power to keep workers in essential war plants and to penalize absenteeism, at the same time he was to require of such firms a guaranteed wage for every worker frozen in the job so that the worker would receive a minimum whenever he was available for work whether or not work was provided.

Throughout the remainder of 1940 registrations and restrictions applied chiefly to special occupations and to industries of particular importance to the war effort. To a considerable extent these orders affected men only, since the problems to be met arose in such fields as building, engineering, scientific work, and shipbuilding.

THE FRAMEWORK OF COMPULSION

Registrations of women.

The fundamental basis of womanpower allocation by the Government was necessarily the compulsory registration of those groups to be recruited and directed. This was likewise the first step from a chronological point of view, and for about a year it was used solely for allocation of women into civilian employment.

On January 21, 1941, nearly a year and a half after British involvement in war, Minister of Labor and National Service Ernest Bevin announced in the House of Commons that "we have now reached the stage where * * * we shall have to call into service many women who in normal circumstances would not take employment." (See timetable in appendix A.)

Compulsory industrial registration began with women 20 and 21 in April and May 1941. Excluded from the registration were women serving in any of 11 listed voluntary or technical war services. Interviews of special groups of the women registrants to determine their capacities were undertaken shortly afterward. By August 1941, some 1½ million women under 26 years of age were registered. Interviews for 650,000 had been scheduled and were taking place at the rate of more than 40,000 a week.

Not all women registered were to be interviewed. Those with children of their own under 14 living with them or those clearly already engaged in vital war work were not called for interview, but rather examination was made first of women registrants without children who were unoccupied or in less important work. Women university students and women studying for certain vocations were considered engaged in essential work and were not to give up their studies for other work. The vocations in which full-time women students were excepted at this point comprised accounting, agriculture, architecture, chemistry (including dispensing), chiropody, dentistry, domestic science, engineering, law, library science, massage, medical midwifery, music and dramatic art, nursery nursing (including day nurseries), nursing, personnel management, physical culture, radiography, sanitary inspection, social service (including housing estate management, hospital almoners, club leaders, health visitors, welfare workers, child-guidance workers, home teachers for the blind), teaching, and veterinary surgery. As time went on, peacetime educational opportunities open to young women needed for war service were increasingly restricted. (See pages 35 and 36.)

Of the 267,000 women interviewed up to July 12, 1941, over 67,000 were placed on the National Work Register or transferred at once to other work. Usually from one-fourth to one-third of those interviewed were found available for work of national importance. By the end of 1942, all women 18 to 45 had registered, swelling the total to 8,670,000.

In an effort to draw on the last remaining reserves of womanpower, the Government began to register the additional 1.3 million women 46 to 50 years of age late in 1943, though it was recognized that these groups would furnish only limited additions to the labor force. These older women were considered immobile workers, and household responsibilities requiring full-time attention exempted them from directions. In determining whether they were available, voluntary work received equal weight with paid work; and if available at all, women in this group were assigned to part-time work.

Preceding and supplementing the general registrations were special registrations of workers in certain fields in which acute labor shortages developed. During 1943 all women up to 60 who at any time had been engaged in nursing were required to register. Likewise women up to 55 who had worked at any time as textile operatives registered. Many of them had been transferred into munitions. Owing to changed war production needs, they were to be returned to the textile plants. This involved the difficult problem of adjusting wages, since they were being recalled from higher-paid munitions manufacture to lower-paid textile work.

Conscription of young women for national service.

Conscription of women for service with the armed forces in the third year of the war marked the start of an unprecedented phase of

British womanpower policy. The National Service (No. 2) Act of 1941 extended liability to military service to women, and under its provisions a Royal Proclamation signed on December 18, 1941, made liable single women who had reached the age of 20 but had not yet reached 31. Previously the women's services had been filled by voluntary enlistment, compulsory measures for women being limited to work in industry. From then on the registrations of women became an instrument not only of industrial mobilization but of actual conscription for national service.

Throughout the development of the compulsory program, the policy had been to allow women as much choice of occupation as was possible, consistent with national needs. Some degree of preference still was permitted women called up under the new procedure. They might choose among (1) the auxiliary forces, (2) civil defense, or (3) certain specified vacancies in industry. The services connected with the Navy and the Air Force (the Women's Royal Naval Service and the Women's Auxiliary Air Force) were small and had waiting lists, so this option was limited in actual practice to the Auxiliary Territorial Service. Women choosing industry were allocated to essential work in shell-filling, small-arms manufacture, or aero-engine work; agriculture, including the Women's Land Army; domestic work in hospitals and certain similar institutions; or to Government Training Centers. If they did not indicate a preference among the three options, they were assigned. Women were assured statutory safeguards relating to claims of conscientious objection or of exceptional hardship. Those recruited for the auxiliary forces were not required to use lethal weapons unless volunteering to do so, and as far as possible they were stationed near their homes. Married women and any woman having a child of her own under 14 years of age living with her were exempt. By the summer of 1943 all women aged 19 to 24 had been called up.

A list of vital war occupations was established, from which women workers essential to production would not be called up. At the outset vital work included munitions industries, transport services, agriculture, full-time Civil Defense Service, hospital and nursing services, school teaching, or work in the Navy, Army, and Air Force Institute Canteens. Any woman individually doing work of national importance in these occupations might be deferred by one of the 45 district boards. Little restriction was placed on voluntary enlistment by women in the armed forces, though an employer could request that a woman employee on work of national importance should not be accepted on a voluntary basis. Previously women had been included in the Schedule of Reserved Occupations. If employed on jobs in which men were reserved or in a special list of occupations applying to women only, they had not been permitted to volunteer for the services. The revised schedule of December 1941, which extended the system of individual deferment for men, no longer applied to women.

The women's services were reported as nearly at full strength by mid-1943. Pressing needs of aircraft manufacture led to plans to discontinue conscription of women into the auxiliary services, the Women's Land Army, and other services, and to request any women volunteering for these services, except for a few special posts, to enter an essential industry instead. The expanding aircraft industry was rated as highly essential, as was the transport service. Special attention was to be given to meeting requirements in the cotton industry, in nursing, and in domestic services connected with hospitals and other institutions.

Government control of hiring and firing.

All hiring of women aged 20 to 30 was placed under the control of the employment exchanges by a regulation effective February 16, 1942. Previously such restrictions had applied to workers in engineering, building, and civil engineering, and to male workers in agriculture and coal mining. This was the first time that a regulation covering all forms of employment had been applied to an entire age group; by the following year it was applied to all women 18 to 40 inclusive. In this way women released from curtailed industries were not, as before, to be absorbed in other nonessential industries when they already were registered for essential work. The order permitted women in agriculture, professional nursing, and teaching to continue to obtain work through the customary agencies. Such agencies had to meet required standards and be approved by the Ministry of Labor. Beginning September 10, 1943, all nurses and midwives 18 to 40 were brought under the order. A special provision was that employment exchanges might issue permits allowing the individual woman to seek her own job under certain circumstances. Individual employers likewise might obtain a certificate exempting them from the order for a specified vacancy requiring particular qualifications.

Women, like men, in firms scheduled under the Essential Work Order might not leave the job nor be dismissed without the consent of the National Service Officer. Women in scheduled firms were guaranteed a minimum wage if available for work during normal working hours. The firm was required to maintain employment conditions "not less favorable than the recognized terms and conditions" under the Conditions of Employment and National Arbitration Order of 1940; welfare arrangements had to be satisfactory, and training provisions adequate. Absenteeism and tardiness were to be dealt with under special procedures.

An order of April 1943 provided safeguards under which the Minister of Labor would direct women into any work, including part-time work, even if it were not scheduled under the Essential Work Order. Directions were from this point on to apply to a stated period. The purpose of this order was to supply substitutes for workers needed for more important work elsewhere and to insure that the part-time work done by married women without children was of a type of most value to the war effort.

A last small loophole was plugged by the requirement that employers must notify the employment exchanges of any women 18 to 60 or any man up to 65 leaving the job, to prevent loss of manpower leaving work not subject to control as essential war work.

OPERATION OF THE WOMANPOWER PROGRAM

Planning and conducting women's mobilization.

Questions of women's mobilization, training, and welfare were placed under the Ministry of Labor and National Service, which dealt with labor supply and training, administered the National Service Acts, carried out unemployment insurance provisions, and concerned itself with the welfare of workers both inside and outside the factory. (See part II of present report.)

Shortly before the adoption of the order requiring women to register for industrial work, the Minister of Labor appointed a Women's Advisory Committee, composed of labor women, women members of Parliament, and other women leaders, to consult with him on questions relating to womanpower. This committee, consisting of eight (later nine) women members, was to meet periodically under the chairmanship of the Parliamentary Secretary to the Ministry of Labor. Though nominally an advisory body, actually it became responsible for policies relating to women's work in war industries, and its advice was not disregarded. Mr. Bevin stated: "I am very grateful for the help I have had from the women's committee * * *. Advice and help have been given to me; and, to do me credit, I do not believe that I have turned down any of the advice; I have acted upon it."

From the first, women from the staff of the Ministry of Labor interviewed women registrants. Special women's panels made recommendations to the interviewers. Women also were included on the appeals boards appointed to hear appeals from the recommendations of the interviewers. Appointment of women throughout the administrative bodies dealing with the mobilization of women was due largely to the pressure of responsible women's groups.

Under the conscription program it was proposed to have one woman sit on every hardship tribunal and a woman to sit as assessor when the umpire heard appeals; at least one woman was to sit on conscientious objectors' tribunals and appellate tribunals, and a woman doctor was to be present at the medical examination of women. The machinery for individual deferment consisted of 45 district manpower boards, each composed of a chairman, the deferment officer, the labor supply officer, the military recruiting officer, and also a womanpower officer. As the Minister of Labor pointed out, "there has not been a committee, right down through the whole administration, into which I have not brought women in a representative capacity—on manpower boards and everything else."

Experience of the woman recruit.

Just what was the experience of the individual woman under these comprehensive wartime measures? The announcement giving the registration date for her age group appeared in the newspapers. On the day set, each woman in the age group was obliged to go to a labor exchange, where women members of the staff helped her to fill out a form giving various personal and occupational data. After a review of the data on her registration form, if she was a mobile worker not currently engaged in work of national importance she might be called in for an interview.

In September 1941 changes in procedure placed the burden of proof that a woman worker was indispensable on her employer, and the burden of proof as to domestic responsibilities on the woman herself. In general, a woman employed full time by a firm at least three-fourths on Government or export work, or by a firm scheduled under the Essential Work Order, or a married woman responsible for the household was not called for interview.

At the interview most women accepted the recommendation of the exchange and proceeded to the war work assigned, less than 2 percent disagreeing with the judgment of the interviewer. However, the woman might feel that her domestic responsibilities or other factors were not taken sufficiently into account. If so, the women's panel of the employment committee reviewed the case. If the woman was unwilling to accept the panel's recommendation, she was issued a directive from which she could appeal to a local appeals board. After final decision by the Ministry of Labor she became liable to prosecution for failure to follow the directive, and on conviction she was liable to a fine up to £100 or imprisonment for 3 months or both. The first court case involving a woman occurred on November 4, 1941, when a woman worker was fined £2 at Leicester for not complying with a direction of the Ministry of Labor and National Service.

Though a married woman with children of her own under 14 living with her was not called for interview, numbers of them voluntarily took jobs. Of the 3,450,000 women with children registered up to the end of 1942, 510,000 were in full-time paid employment when they registered. The number married or widowed without children under 14 was 2¼ million, of whom 970,000 were in full-time paid employment. In addition, numbers of married women were part-time workers.

Of the group called up for the armed services or certain needed industrial work under the National Service Act, only a small fraction of 1 percent pleaded conscientious objection and only five refused to accept the decision of the National Arbitration Tribunal as to wages and conditions of work.

International labor force.

To make the best use of nationals of Allied Powers in support of the common war effort, arrangements were made between the Governments in Britain and those of Belgium, Holland, Norway, Czechoslovakia, and the Free French Government for regulating the employment of such persons in Great Britain, and for that purpose nationals of the powers concerned were required to register particulars about themselves. In pursuance of these agreements, Industrial Labor Force Orders were made under Defense Regulations, and in similar terms they required, subject to certain exceptions, the registration of all nationals of such powers. In the case of women, the ages concerned were over 16 but under 50.

Similar orders included British Protected Persons, further allied nationals, such as Greek, Yugoslav, and Danish, as well as persons of Bulgarian, Finnish, Austrian, Italian, German, Hungarian, Rumanian, Japanese, or Siamese nationality.

It was generally assumed that all persons of nationalities other than Allied who were at liberty in Britain were favorably disposed to the cause of the United Nations and opposed to the form of government currently in power in their own lands. Where objection to munitions work was indicated, endeavors were made to place the individuals in agriculture, hospitals, canteens, British Restaurants, and so forth.

Many thousands of men and women of the various nationalities were provided with civilian employment in science, medicine, nursing, building, agriculture, forestry, and other fields, including armament factories.

Foreign workers were entitled to the same wages and conditions and to the same benefit from Social Service as British subjects.

IV. WAR WORK DONE BY BRITISH WOMEN

According to official figures of September 1943, about 7¾ million women of some 17 million aged 14 to 64 were in the service or in paid employment. Before the war, in contrast, of nearly 16½ million women of these ages about 10⅓ million were classed as "unoccupied." In other terms, 37 percent were gainfully occupied before the war, while some 45 percent were engaged in the war effort by the fall of 1943.

Though considerable increases occurred in the numbers of women at work, still it could not be said that the main industries of the country were carried on chiefly by women. The Oxford Institute of Statistics estimated that the most probable proportion of women among the total employees in the principal industries of the country (excluding agriculture and railways) was not less than 28½ percent and not more than 33½ percent in July 1942, compared to about 27 percent in July 1938. However, these principal industries did not include many of the fields in which the substitution of women was greatest, such as the distributive trades, commercial fields, and various service industries. The importance of the contribution made by women led Prime Minister Churchill to pay them this tribute at a National Conference of Women sponsored by the Government:

> This war effort could not have been achieved if the women had not marched forward in millions and undertaken all kinds of tasks and work for which any other generation but our own—unless you go back to the Stone Age—would have considered them unfitted: work in the fields, heavy work in the foundries and in the shops, very refined work on radio and precision instruments, work in the hospitals, responsible clerical work of all kinds, work throughout the munitions factories, work in the mixed batteries * * *.

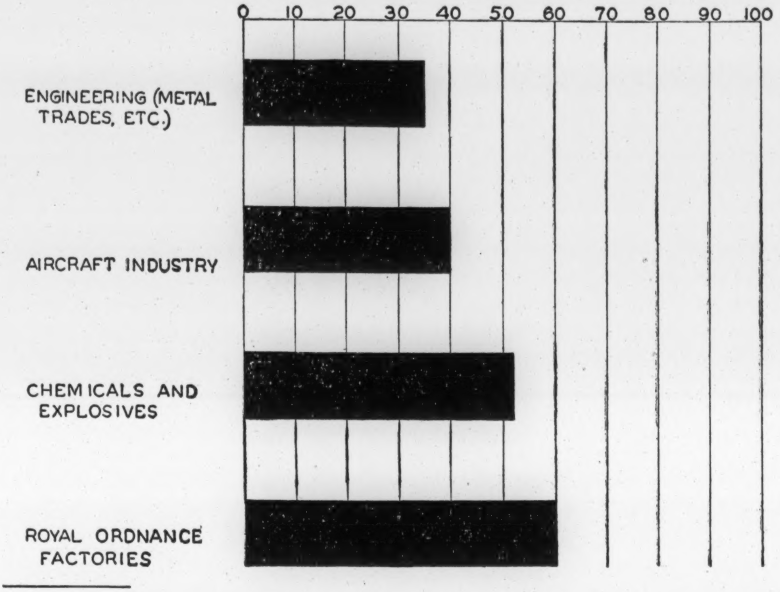
Industrial jobs.

The war extended the work done by women in British industry to such a degree that it would be difficult even to list their occupations. Their contribution was especially great in the "engineering" industries. Officially, general engineering was defined to include the manufacture, assembly, or repair of goods or articles of iron, steel, or other metals involving the use of machine tools, foundry, or forging plant. Consequently it is important in the production of aircraft, guns, shells, tanks, machine tools, marine engines, and so forth, or most of the country's direct war production. (Shipbuilding and the primary iron and steel industries usually are considered as separate and distinct industries.)

While specific data on numbers of women in war industries were withheld for reasons of security, employment of women in engineering industries in November 1941 was placed at four times what it had been when the war began. According to 1943 estimates, about 35 percent of the workers in the engineering industry as a whole were women.

Two official publications of the Ministry of Labor emphasized the important place filled by women in the engineering industry. Beginning in June 1941 an *Engineering Bulletin* was issued each month "designed to help the engineering industry to solve current problems of labor utilization" by presenting information on the breaking down of skilled processes, upgrading, training, and the employment of women on skilled and semiskilled operations. Subsequently a handbook on Women in Engineering was prepared, primarily for the use of the staff of the Ministry of Labor, to assist them in convincing manufacturers that women could be employed on many operations not usually considered suitable.

CHART 2.—PERCENT WOMEN WERE OF TOTAL IN INDUSTRIES SPECIFIED, 1943[1]



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[1] British Information Services, 30 Rockefeller Plaza, New York, "War Job," Misc. pamphlet No. 13 (distributed December 1943).

The use of women by the various branches of industry proceeded at different rates and to different degrees. Further, within each industry differences occurred from one firm to another. In the aircraft industry as a whole some 40 percent of the workers in 1943 were women, but the proportion varied by factory according to nature of product, set-up of plant, and other factors. According to a statement made by the Ministry of Aircraft Production in 1942, women were doing 50 percent of the work in many engine plants, though one of the large engine firms had only about 20 percent women in the following April. In aircraft-component manufacture women constituted still higher proportions of the work force in individual plants. There remained scarcely any department of aircraft building where women were not working successfully, including the skilled repair and reconditioning of engines. Here the proportion of women was about 40 percent in one plant, varying as follows in the different sections:

Section	*Percent women*
Strip	20
Fitting and repair of subassemblies and units	45
Engine dispatch	50
Strip inspection	75
Electric hraness and magneto repair and test	90

In certain munitions plants, especially those where much of the work involved handling small parts or units, the proportions of women ranged much higher even as early as 1941; in a factory producing 3-inch shells, for example, they were 90 percent; in a Royal Ordnance Factory in Wales, 80 percent; and at an earlier date, in a fuze factory in the Midlands, 90 percent of the employees were women. The large number of women in munitions at the beginning of the present war was due in part to the fact that radio or electrical shops where women were already working turned to producing munitions, and many of the munitions factories had employed women on some processes ever since the war of 1914–18. In 1943 the 42 Royal Ordnance Factories employed a total of 300,000 workers, 60 percent of them women.

The methods used in British shipbuilding retarded the introduction of women into the main branch of this industry. However, following an investigation into possibilities for the use of women in shipyards the scope of their work expanded. Though still a relatively small proportion of the work force in 1943, women were engaged in a variety of operations, including repairing and repainting battleships and submarines as well as numerous occupations in the yard shops. Their work included welding, electrical wiring, painting, cleaning, hammer driving, crane driving. They performed various operations in yard foundries, boiler shops, blacksmith shops, fitting shops, in the platers' sheds, in the drawing office and the mold loft, and in many other departments.

Innumerable other examples might be cited of the war work done by British women. Suffice it to say that there is scarcely any job at which they have not been employed. Various methods were adopted to overcome limitations due to lack of physical strength. Even occupations that appeared to be beyond the average woman's strength were undertaken, through careful selection of the women and through the adaption of the job to women's capability, such as the provision of suitable tools and the use of mechanical devices for heavy lifting. In many cases the measures embodied benefits for men as well as women and contributed to increased efficiency in the plant.

On the repair of heavy motor vehicles, for example, a mandrel press was modified so as to obtain maximum leverage, instead of depending on the extra force on the part of the operator. In another instance time and fatigue were reduced by use of a wheel attachment for heavy jacks; previously they were moved across the shop by tilting them on two feet and then swinging them onto the other two. In one shell factory hand-operated pedestal lifts and movable bench trays were introduced to enable women to do all machining operations on 180-pound forgings. In using the bench tray the operator rolled the rough shell from the conveyor into the tray, swung the tray out to meet a similar tray swinging from her machine, and slid the shell across the gangway. Effort was decreased further by means of a roller at the tip of the machine tray. In other cases the shell was transferred from conveyor to machine and back to conveyor, or from one machine to the next, by a simple hand-operated lift.

If job engineering extended the scope of work done by women to heavy and hard tasks, training and experience opened up fields requiring skill and responsibility. In 1942 a special register was set up for women in technical work by the Ministry of Labor. Jobs to be filled from this register included drafting, training-school instructors, planning and production assistants, time-and-motion-study workers, laboratory assistants, and other types of work in munitions industries. Women workers through experience in the factory and supplementary training became forewomen, machine setters, instructors in plant training schools.

Essential services.

Many women worked in trade, in the civil service, in transportation, and other fields. The railroad staff of the country included thousands of women working as porters, ticket collectors, carriage cleaners, truck drivers, laborers, signal operators, and in other jobs. In motor transportation women worked as drivers of all types of vehicles, as well as in repair and maintenance departments. Buses, subways, and streetcars took on women in large numbers in a great variety of work. At the end of 1943 transport was designated as one of the fields to which women were to be directed. Nursing and domestic service were in such great need of women workers that special committees were set up to formulate standards for wages and working conditions.

Occupations in the armed forces.

In the work of the auxiliaries of the war forces, women proved indispensable. The Women's Auxiliary Air Force, which had begun by filling 5 types of work (cooks, clerks, drivers, orderlies, and employment assistants) expanded to 6 times its original size, the women in it filling over 51 trades. The Women's Royal Naval Service took over many of the men's occupations, and eventually it was planned that the Royal Navy on shore would be manned entirely by women except for jobs requiring physical strength beyond their power. Women's work in the Auxiliary Territorial Service became of very great importance, including 80 different trades. At the end of 1943, some 12,000 of a total force of 212,000 were overseas. The rest were in the following types of work, with approximate numbers as given:

Tradeswomen	66,000
Clerical	30,000
Technical	9,000
Teleprinter operators	2,000
Switchboard operators	4,000
Cooks	4,000
Antiaircraft	70,000
Drivers	15,000

V. WOMEN'S WAGES AND EARNINGS

THE BASIS FOR PAYMENT OF WOMEN RECRUITS TO INDUSTRY

Principles established by union-employer agreements.

The setting of women's wage rates became the frequent subject of union negotiation as women went into war production. At the same time woman membership in unions increased from 925,000 in 1938 to 1,372,000 in 1941. (See table 2 in appendix B.) In some instances the question of determining such wages under wartime agreements reached the Industrial Court. In all these cases the court upheld the principle that a woman doing the full work of a man should receive the man's remuneration for the job. On this question, therefore, the policy upheld by the court corresponded to that adhered to in principle by the National War Labor Board in the United States. As is shown below, there was the usual difficulty of determining when the work was the same as that done by men, and there were several grades of women's work, so in practice many women were paid far less than men.

In agreeing to changes in trade practices to give effect to the Government policy of using women wherever possible, the unions stipulated that such innovation should continue only for the duration of the emergency and that the introduction of women on men's jobs should not be used to break down wage rates. Arrangements permitting the use of women on men's work and providing that after a suitable probationary period women should be paid men's rates, or that they should receive specified proportions of men's rates, were arrived at for engineering, bus transportation, railway workshops, shipbuilding, chemicals, and at least 60 other industries and occupations. (See list in appendix B.) Typical of these arrangements were the following:

Engineering industries.—An agreement of May 22, 1940, between the Engineering and Allied Employers' National Federation, the Amalgamated Engineering Union, the Transport and General Workers Union, and the National Union of General and Municipal Workers set up principles for most war industry. The agreement provided that women employed on men's work in the manufacture of engineering products were to be considered as temporarily employed, for the duration of the war only, and a record was to be kept of all such changes. Women so employed were to serve an 8-week probationary period at the women's national minimum-wage rate, followed by 12 weeks at this rate plus one-third of the difference between the women's and men's rates and one-third of the difference between the women's and men's bonus. For a further 12 weeks they would be paid at three-fourths of the men's rate and of the men's bonus. This was approximately through the eighth month of such employment. Then, if "able to carry out the work of the men they replace without additional supervision or assistance," they would receive the full men's rate and bonus; otherwise the rate would be subject to negotiation. The agreement did not restrict extensions in the employment of women on "women's work" to additional plants, or replacement of boys under 21 by women.

Road passenger transport industry.—An Industrial Court award of April 1940 established the wages of women employed to replace men as conductors on streetcars and buses. This award provided that the scales of pay for women conductors over 18 should be for the first 6 months of service not less than 90 percent of the adult male conductor's beginning rate and thereafter, if they had reached the age of 21, the usual scale of pay of adult male conductors. The conditions of employment of women conductors were to be the same as those of men, except that the guaranteed week might be 40 hours instead of 48, all time worked in excess of 40 hours being paid for at overtime rates.

Boot and shoe industry.—An agreement between the National Federation of Boot Manufacturers and the National Union of Boot and Shoe Operatives specified a graduated scale for 1 month for women in the industry transferring to men's departments, followed by full application of men's piece rates; for women newly entering the industry the full minimum would be paid after 12 weeks, 6 at 15 percent below the minimum and 6 at 10 percent below.

Building-trade craftsmen in Government plants.—An agreement of May 8, 1943, between the Ministry of Supply and building-trade organizations provided that in any cases in which a woman carried out the entire job of a building-trade craftsman without special assistance, guidance, or supervision she was to be paid the standard basic rate and bonus of skilled building-trade craftsmen of that grade. Where women carried out such work with special assistance, guidance, or supervision, or where work which once formed part of building-trade craftsman's duties was split away from the rest, women were to receive from 75 percent to 85 percent of the men's basic rates and bonus according to the degree to which they could do the men's job without special assistance, guidance, or supervision.

Practical application of payment principles.

Of 26 delegates to the National Conference of Amalgamated Engineering Union Women Shop Stewards meeting in May 1943, only 2 were receiving the full skilled man's rate, though most of them had been in engineering from 2 to 2½ years and only one had been in the industry as little as 8 months.

This illustrates the considerable difficulty of establishing that a woman was doing exactly the identical job formerly done by a man. In fact, in a number of instances the British Industrial Court found that women workers were doing a slightly different job from that formerly performed by a man.

Even potentially the rate for the job was applicable to only a part of the women in war indutries. Much of the work undertaken by women since the war was formerly classified as women's work in certain plants or certain sections of an industry, and lower rates were the rule for women on women's work.

Payments to trainees under the Government training schemes, which were revised so as to be roughly equivalent to what the individuals could earn by directly entering industry, started during 1943 at 50s. for adult women and 71s. 6d. for men.

Though in general war workers tended to have higher earnings than workers in other industries, about 12 percent of the employees in both these groups covered in a survey in 1942, most of them women, received £2 a week or less. The practice still was prevalent of paying women on lower scales than men, and the highest earnings of women in a plant usually were well below the average for men. In a large war factory brought into a country village at the start of the war, the average of the 10 most highly paid men at the beginning of 1942 was £6 16s. 1d. and the average of the 10 mostly highly paid women £3 6s. 7d., the women averaging less than half as much as the men. In another plant the highest net wages for women, who manned the entire shell shop, were about the same as the average net wages of men laborers (£3 5d.) and less than half of the maximum of men in other departments.

	Highest net wages		
	£	*s.*	*d.*
Women			
Shell shop	3	5	10
Men			
Main shop	7	15	8
Plating shop	8	5	6
Fitting shop	7	14	5

An important reason for the different earnings of women was the recognition of various grades of women's work. An agreement between the unions and the Ministry of Supply, for example, recognized four grades for women in Government plants: (1) Women's work (fuzes, small arms, small-arms ammunition, and cartridge cases up to and including 3.7 inches); (2) work determined on the basis of youths' rates (on shell cases less than 4 inches); (3) work done entirely by men before the war, and in the wartime Royal Ordnance Factories "broken down"; and (4) men's work (crane driving, truck driving, commercial-vehicle driving, and acid-tank employment). Consequently, in 1942, nearly three-fourths of the women in Royal Ordnance Factories were paid on the women's weekly minimum-rate schedule of 43 or 46 shillings for a 47-hour week. (See table 4 in appendix B.)

The unions that customarily represented women workers in metal trades pointed out the importance to the whole problem of the issue of wage rates on "women's work." At the end of 1942 efforts of many years culminated in an agreement setting up in the engineering industry for women in occupations requiring skill a wage rate equal to, and in some cases higher than, that for male labor. Thus progress was made toward achieving rates related to the work done.

It was in a field outside industry that a sensational division in the House of Commons in March 1944 hinged on the question of equal pay for women. Government Opposition forces proposing to amend the Education Bill by inserting a clause providing pay for women teachers equal to that of men succeeded in overriding the Government by a vote of 117 to 116. Faced with a choice of voting either against the Government or against equal pay, many members, both Conservatives and Laborites, left the House before the division.

Reasonably sure that in the critical war period his leadership would be sustained if put to the test on such a domestic matter, the Prime

Minister presented to the House within 48 hours the proposal to delete the whole section of the bill containing this provision and to stake his entire war government on the issue. He was sustained by a vote of 425 to 23. This was not the first time a British Government had defeated equal pay by weighting such a decision with a confidence vote. A similar situation occurred under the Prime Minister in 1936.

TRENDS IN WOMEN'S PAY DURING THE WAR

Industrial earnings.

A study by the Ministry of Labor of average earnings in January 1943 shows the usual situation—that in a period of rising wages the increase tends to be greater for those formerly very low paid. Thus, adult women's earnings had risen by 80 percent above the prewar period compared to a 65-percent rise for adult men. It must be remembered, however, that this rise was from a far lower wage before the war for women than for men. Moreover, women's average earnings still were greatly below men's, their ratio, though having risen from 47 percent in October 1938, being only 51 percent in January 1943. This is shown by the following figures taken from the Ministry of Labor Gazette, June 1943:

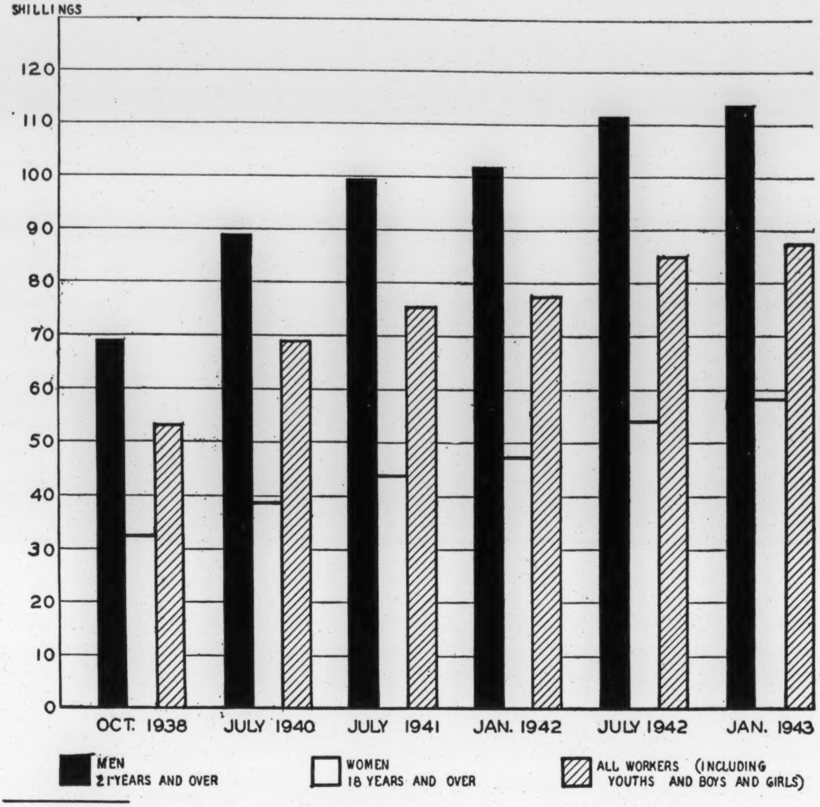
	Percent increase in average weekly earnings over October 1938		*Ratio of women's to men's average weekly earnings (percent)*
Month	*Men's*	*Women's*	
July 1940	29	20	44
July 1941	44	35	44
January 1942	48	46	47
July 1942	62	67	49
January 1943	65	80	51

These reports of January 1943 covered approximately 6¼ million workers in nearly 55,000 firms. Table 5 in appendix B gives further details by industry. Average earnings for all the industries combined rose from 32s. 6d. for women and 69s. for men in October 1938 to 58s. 6d. for women and 113s. 9d. for men in January 1943. The greater proportional increase in women's earnings was due to the operation of several forces, including the growing numbers of women in jobs paid for at men's rates, or at specified proportions of men's rates, generally higher than wage scales for work usually done by women. Other factors included the passing of the probationary periods, the receipt of more overtime pay, and the transfer to better-paid industries.

As a matter of fact, much of the industrial work into which women were called had been considered formerly "women's work" and hence was based on women's rates, and in other cases women replaced youths with correspondingly low rates. Further, in many instances where expansion of women's employment occurred new factories were built and the work was broken down, new jigs and machines being developed, so that the job was no longer of the same type that a skilled man had held. For example, the operation of a new aircraft-engine factory in which all but 50 workers were unskilled labor and nearly a third were women was said to be possible largely because of the engineers who planned and tooled the plant.

In an analysis of the various factors affecting earnings it was pointed out that the increase for all workers for the period from October 1938 to January 1943 would have been 67.5 percent instead of 65 percent if there had been no change in the ratio of women to men, and that because of the sex differential in wage scales the greater employment of women made average earnings lower than otherwise they would have been.

CHART 3.—AVERAGE WEEKLY EARNINGS OF WORKPEOPLE IN THE PRINCIPAL INDUSTRIES OF GREAT BRITAIN AND NORTHERN IRELAND, OCTOBER 1938, JULY 1940, AND EVERY 6 MONTHS FROM JULY 1941 TO JANUARY 1943[1]



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[1] Ministry of Labor Gazette, June 1943, p. 81.

Adult women's average weekly earnings in individual industries ranged from a low of 44s. 11d. in public utility services to a maximum of 72s. 2d. in Government industrial establishments. The range for adult men was from 84s. 1d. in public utility services to 131s. 6d. in metal, engineering, and shipbuilding. Thus the lowest for men exceeded greatly the average in the highest-paying industry for women. In the metal group women's earnings averaged about 51 percent of men's or about the same ratio as in all industries combined.

Pay in the forces.

Women doctors in the armed forces were commissioned and paid on the same basis as men. In fields other than medicine women's rate still was two-thirds that of men, though it became increasingly clear as the war continued that women in the forces were replacing men on an equivalent basis.

Compensation for war injury.

In 1943 a remedy for the different treatment of civilian women in regard to war injuries finally was achieved through the efforts of many women's organizations and other groups. The air raids and the increased participation of women in war work emphasized the difference in compensation as compared with the similarity in risk. As a result of the recommendations of a special Parliamentary Committee, weekly allowances for women, beginning April 19, 1943, were to be 35s., and if the period of their disablement exceeded 6 months, they were to receive pensions ranging from 7s. 6d. to 37s. 6d. a week (for total disability), the same as men. The same rate was to be given whether or not the injured person was gainfully employed.

VI. POSTWAR PLANNING AND PROGRAM RELATING TO WOMEN

Official attention to problems of reconstruction and postwar dated from January 1941, when Arthur Greenwood was appointed Minister without Portfolio responsible for the study of postwar problems. A growing number of commissions and officials were designated to investigate questions as they arose, and various studies on special problems were made in the period following. Among the reports of particular concern to women were the Beveridge Report on social insurance, the Rushcliffe Report on salaries of nurses and midwives, and the scheme for further education and training of men and women in national service.

It was acknowledged generally by all groups that the great contribution of women in carrying on the war was entitled to recognition. The Minister of Labor, Ernest Bevin, stated in July 1942 that "if they had not come forward there would have been a great gap, and therefore it will become the bounden duty of every one of us to arrive at proper conclusions as to the right use and place that women must find in the postwar world." Various industrial leaders, workers' organizations, and women's groups evidenced growing attention to the role of women in the community and the nation when peace should come. In British planning to assure social security after the war, recognition of women's needs has advanced far beyond their former status, either in Great Britain or in almost any other country. The effect of war on British population makes such a standing for women of the utmost importance.

The Beveridge Report and women.

The plan proposed by Sir William Beveridge in 1942 was designed to put an end to want by combining and expanding the various social-insurance systems previously in operation in Great Britain.

In the course of outlining principles and methods of social security for the future, the report crystallized current ideas as to the social and economic status of women in Great Britain, and with regard for practical realities it aimed to provide security for women in terms of their role in the community.

In the Beveridge Report the principles underlying social insurance reached a point where they demonstrated great progress as they affected women. Of particular note was the recognition of married women's contribution in the home as demanding an adequate security provision and benefits during pregnancy and after childbirth. Domestic service workers, nurses, and independent workers were to be covered by the plan; previous deficiencies as to maternity benefits were to be remedied; equal benefits with men were proposed for unmarried women; and widows with small children were to be paid a guardian benefit and children's allowances.

Unmarried women employees, like all employed men, were to be insured under the plan for unemployment, disability, retirement pension, medical treatment, and funeral expenses. Payments for unemployment and short periods of disability were not based on the wage, but on the grounds that minimum requirements of men and women differed very little; identical subsistence benefits of 24s. a week were to be payable to either in the event of unemployment, disability up to 13 weeks, or retirement in old age. After 13 weeks, pensions amounting to two-thirds of the earnings of the employee were to be paid for industrial accident and disease. The lower amounts generally earned by women would thus usually make compensation in their case less, though not lower than the short-term disability benefit.

The rate of contribution was set tentatively at 6s. a week for all employed adult women (2s. 6d. of this contributed by the woman's employer), while for employed men it was to be 7s. 6d. a week (3s. 3d. by the employer). By the higher rate for men, it was stated, it was planned to provide benefits for married women not working for pay but rendering unpaid services to their families. However, the higher rate was not to be confined to married men or men with dependents. Though not so designed, the practical effect was to take account to some extent of the lower earnings of women. Because, according to estimates, only about one in seven married women was gainfully occupied, and because even when working the married woman's earnings were considered to be of a supplementary nature, the plan treated "man and wife as a team." A joint rate of benefit was to be provided of 40s. a week in the case of unemployment, disability, or retirement of the husband if the wife were not gainfully occupied or if the working wife elected to be "exempt." His contributions also secured to the married woman maternity grant and provision for widowhood. In addition to maternity grant, housewives taking paid work were to be entitled to maternity benefit for 13 weeks to enable them to give up working before and after childbirth. The working wife paying her own unemployment and disability contribution was to be entitled to 16s. when she went on benefit and her husband to 24s. when he went on benefit.

Women conscripted for national service.

In one instance a scheme to meet certain postwar needs was put into operation for eligible groups before the end of the war. Owing to the mobilization of large numbers of young people, many of them were forced to interrupt plans for business and professional careers. The great value to the country of encouraging fresh sources of supply of well-trained men and women after the war was recognized. Plans were made by which the Government would provide financial assistance to women as well as men demobilized from the armed forces (including nursing and civil defense services), or released from work of national importance, so that qualified candidates could obtain professional and business training. During the war men and women discharged from the services because of disablement or on medical grounds could apply under the scheme. An interdepartmental committee of 17 members, including 2 women, was appointed to determine the numbers that should be encouraged to take training in the various fields.

Demands of industry and the armed forces in Britain forced policies of restricting women's educational opportunities increasingly to those in line with wartime needs. Consequently, women students of fine arts, music, architecture, and acting could be given no deferment after their twentieth birthday. Under the mobilization program as carried out earlier in the war women taking university training in medicine, dentistry, veterinary surgery, pharmacy, and scientific and technical subjects were allowed to complete their education. Women entering universities in October 1943 or subsequently were to be permitted to take a 3 years' course if not over 18 years of age; and if over 18 but under 19, a 2 years' course. Only women who planned to undertake work of national importance on completing their training, including teaching and approved types of social service, would be accepted. They would be allowed to continue only so long as their progress remained satisfactory.

Women of registration age taking such courses as massage, dispensing, radiography, domestic science, or social science at technical colleges and similar schools likewise were permitted to become full-time students, with the same limitations.

An offical investigation into conditions in the women's services proposed that these well-trained women should be used in the work of relief and rehabilitation in Europe at the war's end. The report pointed out the value to the women themselves and others in the forging of the peace:

> * * * To meet the needs of the liberated populations and those of the armies of occupation, technical staffs will be required throughout Europe both for administration and relief. Detachments of the Women's Services would, in our opinion, be admirably fitted to share in these duties. As service units they can be attached without difficulty of any kind to the appropriate occupying establishments. Much of the work to be done is work in which the cooperation of women is not only desirable but essential. That cooperation can be achieved in rapid and simple form through the organization of the auxiliaries for foreign service. Clerks, cooks, drivers, orderlies, will be wanted to carry on day-to-day duties much as they are carried on at present. Administrative tasks will exist in plenty for officers capable of handling the problems of want and suffering which the liberated countries will present. Employment for the time being on the Continent would ease the demobilization of the Women's Services and the return of the auxiliaries to civil life.
>
> * * * To associate women with the task of reconstruction in Europe, to call upon them to share in a work of healing and mercy, would be not only to bring their war duties to a noble conclusion, but to open a new chapter in international relationships of high value for the future. We have no doubt that volunteers would be forthcoming from all the services should a scheme on some lines as above suggested prove feasible. And we have also no doubt that the auxiliaries would throw themselves with equal enthusiasm into the work and adventure of peace as they show today in the work and adventure of war.

The women's branch of the British Legion, in a draft of plans for demobilization of service women, proposed disability and pensions schemes that would benefit women equally with men and recommended the following order of release:

1. Wives, along with their husbands.
2. Older women, on the grounds they have more commitments to resume.
3. Trained women needed for specific jobs.

4. Younger women and others requiring training or refresher courses.

Women as workers.

Employers, members of Parliament, Government officials, and others meted out high praise to women for their contribution to war production and the degree of skill attained. Through 1943, however, no clear statement of official policy appeared with regard to women's status and opportunities in the postwar labor market.

With many industries and trades formerly closed to women workers beginning to demand them, the unions made it a point to bring the women into their membership even though only for the duration. During 1941 women members of trade-unions increased by 26.8 percent compared to a 4.7 percent increase for men. At the end of that year there were 5,718,000 men and 1,372,000 women members. Women's increases occurred mainly in distribution, transport, National Government service, and clothing; men's in the engineering and metal industries. The total membership still was more than a million below the peak year of 1920, but women members reached an all-time high and accounted for nearly one-fifth of all trade-unionists.

The number of women trade-unionists passed the 2-million mark during 1943. This included some 300,000 women in the Transport and General Workers Union and about 65,000 in the Amalgamated Engineering Union, the two largest in Great Britain. Another 265,000 women belonged to the National Union of General and Municipal Workers. In these three unions women constituted respectively about 24, 8, and 36 percent of the total membership. The A. E. U. had admitted women to membership in January 1943 for the first time in its 90 years of existence.

The principle of the rate for the job was recognized by the unions as of special significance for the postwar period. Both the Trades Union Congress and the Labor Party supported it, as did unions and other organizations. The Women's Advisory Committee on Postwar Reconstruction reiterated it before the 1943 annual meeting of unions with large woman memberships, submitting a memorandum on this and other postwar problems of women workers:

> 1. Women have established their claim to a share in the economic life of the nation. By having shared equally with men the tremendous task of producing for the needs of the war, they have an equal right to employment after the war. The committee, therefore, considers that all classes of women wage earners who have contributed to the war effort, either in industry or in the services irrespective of whether they have been transferred, directed, conscripted, or have volunteered, have an equal right to employment. They reaffirm their view that the sex of the worker should not be a factor in determining payment, which should be based on the work performed. The Government have a responsibility to all classes of wage earners who have been conscripted, transferred, directed, or volunteered from one occupation to another, so to organize the industrial life of the nation that every one of those workers is assured of employment after the war.
>
> 2. That in order to insure this there must be gradual demobilization of women after the war.
>
> 3. That special consideration should be given to the position of young people whose opportunities have been restricted by the war, with regard to opportunities for training and resumption of occupation.
>
> 4. Detailed consideration of the field of employment which would be open to women.

In line with the fourth proposal was one section of an Interim Report on Postwar Reconstruction prepared by the Electrical Association for Women of Great Britain. The report listed careers open to women requiring a knowledge of electricity. These included jobs in the installation and maintenance of electricity, as meter readers, and as designers and operatives in electrical manufacture. Others included were architects, communications engineers, electrical physiotherapists, X-ray technicians, as well as clerical, administrative, publicity, and sales work in electrical supply, contracting, and manufacture, and certain jobs in domestic science and horticulture. These occupations were felt to offer good prospects for women in the postwar world, particularly in jobs where women proved their ability. To this end the association recommended that efforts should be made to keep open to women new and interesting work successfully carried on during the war.

Women in family and civic life.

The destruction of buildings and homes due to bombing focused attention on the question of new and reconstructed housing after the war. Elizabeth Denby, a leading British housing expert, pointed out that houses built before the war were not particularly suited to the needs and wishes of women, who spent most time in them. The importance of incorporating scientific thought and development to make a more effective and convenient center of family life has been demonstrated. Various women's groups, including the Standing Joint Committee of Working Women's Organizations, the Electrical Association for Women, and the Women's Advisory Housing Council, made a study and obtained suggestions as to dwelling designs wanted by the women who run homes, for submission to the Government.

APPENDIX A—SIGNIFICANT DATES IN THE BRITISH WOMANPOWER PROGRAM

Sept. 3, 1939	Great Britain declared war with Germany.
September 1939	Schedule of Reserved Occupations revised. (First issued January 1939.) This edition provided that women (as well as men above specified ages) in occupations listed in part II, and women in occupations listed in part III, could be accepted for national defense service other than nursing and first aid only in their "trade capacity."
Apr. 19, 1940	Industrial Court Award No. 1755 for the Road Passenger Transport Industry. Specified that women 21 and over replacing men should receive the adult male rate after 6 months.
May 22, 1940	Engineering agreements formulated. Relaxed existing customs to permit, for the duration of the war, the extended employment of women and provided that women fully replacing men should receive the rate and bonus of the men they replaced.
May 22, 1940	Emergency Powers (Defense) Act, 1940, and Regulations. Extended Act of 1939 to include power to require persons "to place themselves, their services, and their property at the disposal of His Majesty." Regulation 58A gave to the Minister of Labor and National Service the control and use of all labor.
January 1941	Government training centers opened to women.
Jan. 21, 1941	Woman mobilization program announced in the House of Commons.
March 5, 1941	The Essential Work (General Provisions) Order, 1941. This provided that workers might not leave or be dismissed from jobs in scheduled firms without consent of a National Service Officer, the firm being required to provide recognized conditions of work, welfare arrangements, and training programs.
March 1941	Women's Consultative Committee appointed.
Mar. 15, 1941	Registration for Employment Order, 1941, to ascertain the available labor force and its capacities as a basis for mobilization for the war effort.

Apr. 19, 1941	Compulsory registration of women under the Registration for Employment Order inaugurated with the registration of women born in 1920.
September 1941	More selective basis adopted for interviewing women registrants.
December 1941	Schedule of Reserved Occupations for women withdrawn.
Dec. 18, 1941	Single women 20 but under 31 made liable for military service under the National Service (No. 2) Act, 1941.
Jan. 23 (Feb. 16), 1942	Employment of Women (Control of Engagement) Order, 1942, issued, under which women 20–30 (later 18–30) could be hired only through employment exchanges or, in certain cases, other authorized channels. The order excepted women with children under 14 living with them and married women with household responsibilities.
Aug. 15, 1942	Fire-guard duty made compulsory for women 20 to 45, unless employed 55 hours a week, whether or not on war work.
Oct. 3, 1942	Registration of women born in 1897, thus completing registration of women 18 to 45.
Nov. 20, 1942	The Beveridge Report—Social Insurance and Allied Services, by Sir William Beveridge—submitted to the Government.
Jan. 13, 1943	Royal Proclamation under National Service Acts reduced the lower age limit for compulsory service by women in the uniformed forces to 19 years.
Jan. 28, 1943	Powers of direction applied to work not scheduled under the Essential Work Order, including part-time work.
Jan. 28 (Feb. 22), 1943	Employment of Women (Control of Engagement) Order, 1943, extended to cover all women 18 to 40. The order required all women covered to obtain employment through a local office of the Ministry of Labor and National Service or other approved agencies.
March 1943	Government postwar education and training scheme announced.
Mar. 30, 1943	Special registration of nurses and midwives ordered.
Apr. 19, 1943	Compensation for civilian war injury payable to women equalized with men's.

Apr. 28 (May 8), 1943	Control of Employment (Directed Persons) Order provided that persons directed into full-time work not covered by Essential Work Orders, including part-time work, might not be discharged or leave employment without approval of the National Service Officer and that directions were to apply to a specified period, usually 6 months.
Aug. 10 (Aug. 20), 1943	The Control of Employment (Notice of Termination) Order, 1943, requiring an employer to notify the nearest local office of the Ministry of Labor and National Service when any man 18 to 64 or woman 18 to 60 is about to leave the job, if employed 20 hours or more per week.
Sept. 20 to Oct. 2, 1943 (inclusive).	Special registration of cotton operatives.
Sept. 21, 1943	Announcement in the House of Commons of the extension of mobilization to women 46–50.
Sept. 28, 1943	National Conference of Women held in London sponsored by the Government. The purpose of the conference, which was national and nonpolitical, was "to bring women into contact with those of H. M. Ministers who are responsible for aspects of national policy which particularly affect women."
Nov. 6, 1943	Registration of women born in 1893, thus completing registration of women 18 to 50.

NOTE.—Where two dates are shown for a single regulation, the first is the date issued, the second the date effective.

Appendix B.—TABLES SHOWING WARTIME TRENDS IN UNEMPLOYMENT, WAGES, AND UNION MEMBERSHIP OF BRITISH WOMEN

Table 1.—Unemployed persons 14 years of age and over on the register of employment exchanges, by quarterly period, 1939 to 1943[1]

Date	Total	Men and boys	Women and girls
1939			
January	2, 039, 026	1, 574, 178	464, 848
April	1, 644, 394	1, 266, 020	378, 374
July	1, 256, 424	981, 010	275, 414
October	1, 430, 638	947, 047	483, 591
1940			
January	1, 518, 896	1, 079, 048	439, 848
April	972, 695	656, 669	316, 026
July	827, 266	470, 197	357, 069
October	834, 851	456, 590	378, 261
1941			
January	695, 606	371, 695	323, 911
April	410, 511	214, 549	195, 962
July	277, 280	145, 529	131, 751
October	216, 199	113, 074	103, 125
1942			
January	194, 848	116, 454	78, 394
April	127, 499	76, 549	50, 950
July	107, 005	70, 024	36, 981
October	101, 080	64, 872	36, 208
1943			
January	99, 017	61, 709	37, 308
April	80, 091	53, 838	26, 253
July	73, 258	50, 236	23, 022
October	73, 936	49, 809	24, 127

[1] Source: Ministry of Labor Gazette.

Table 2.—Trade-union membership among women, 1913 to 1941[1]

Year	Number of women trade-union members (thousands)	Percent of total union membership	Year	Number of women trade-union members (thousands)	Percent of total union membership
1941	1, 372	19. 4	1926	812	15. 6
1940	1, 082	16. 5	1925	835	15. 2
1939	972	15. 6	1924	814	14. 7
1938	925	15. 3	1923	822	15. 1
1937	895	15. 3	1922	872	15. 5
1936	800	15. 1	1921	1, 005	15. 2
1935	761	15. 6	1920	1, 342	16. 1
1934	736	16. 0	1919	1, 326	16. 7
1933	731	16. 6	1918	1, 209	18. 5
1932	746	16. 8	1917	878	16. 0
1931	765	16. 5	1916	626	13. 5
1930	793	16. 4	1915	491	11. 3
1929	802	16. 5	1914	437	10. 5
1928	795	16. 5	1913	433	10. 5
1927	794	16. 1			

[1] Source: Ministry of Labor Gazette, September 1939 and December 1942.

Table 3.—Arrangements as to wage rates for women fully replacing men, by industry or occupation [1]

Men's rate payable to women fully replacing men, after a probationary period

- Boot and shoe manufacture.[2]
- Cement manufacture.
- Chemical manufacture.
- Corn milling.
- County Council roadmen.
- Drug and fine chemical manufacture.
- Electrical cable making.[2]
- Electrical contracting.
- Electricity supply.
- Engineering.
- Felt-hat manufacture.
- Flour milling, machine women.
- Heavy leather tanning.[2]
- Local authorities (nontrading services).
- Pig iron and iron and steel, other than laboring work.
- Printing and bookbinding.
- Printing-ink manufacture.
- Railway service (conciliation grades).
- Railway workshops.
- Retail cooperative societies, general distributive and transport workers.
- Road haulage (goods).
- Road passenger transport, tram and bus, drivers and conductors.
- Rubber manufacture.
- Sheet steel manufacture and galvanizing, semiskilled and skilled labor.[2]
- Shipbuilding and ship repair.
- Tin-plate manufacture, other than laboring.
- Waterworks.
- Wholesale clothing manufacture, cutting departments.

Men's rate payable to women fully replacing men, with no specified probationary period

- Admiralty establishments, except laborers.
- Baking.
- Beet-sugar manufacture.
- Building brick, roofing, tile and refractories manufacture.[2]
- Cast stone and cast concrete manufacture.[2]
- Cinema theaters, cinema projectionists.
- Fertilizer industry.
- Glue and gelatin manufacture.
- Home-grown timber.
- Ocher mining and grinding.
- Potato drying.
- Royal Ordnance Factories, building trade craftsmen.[3]
- Royal Ordnance Factories, skilled mechanics.
- Soap and candle manufacture.
- Tobacco manufacture.

Lower rates payable to women replacing men

- Admiralty establishments, ordinary laborers.
- Asbestos manufacture.[4]
- Building.
- Fellmongering.[2]
- Flour milling, truckers and mill cleaners; packers.
- Furniture manufacture, porters, laborers, others.[2]
- Hosiery bleaching.
- Leather-belt manufacture.[2]
- Leather currying and dressing.[2]
- Light castings manufacture.[4]
- Packing-case manufacture.
- Paint manufacture.[5]
- Pig iron and iron and steel manufacture, laboring work.
- Plywood manufacture.
- Royal Ordnance Factories, manufacture of propellants, explosives, and acids previously carried out by male labor.
- Sheet steel manufacture and galvanizing, unskilled labor.
- Tinplate manufacture, laboring work (6s. 10½ d. a shift plus man's bonus).
- Vehicle building (full man's basic rate but women's war bonus).
- Wholesale grocery trade.

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[1] Source: Memorandum from Ministry of Labor and National Service, "Rates of Wages of Women Employed on Work Previously Performed by Men," *Appendix C*, Proceedings of Select Committee on Equal Compensation, London, Feb. 16, 1943, unless otherwise indicated. This should be consulted for further details.

[2] Same piece-work rates to be paid to women, though time rate paid women is lower during probationary period, or in cases where woman does not fully replace a man, or where man's full-time rate is unattainable.

[3] *Amalgamated Society of Woodworkers' Monthly Journal*, June 1943, p. 216.

[4] Piece-work rate lower for women, or may be negotiated.

[5] *National Union of General and Municipal Workers' Journal*, November 1942, pp. 395–396, and December 1943, p. 378.

Table 4.—Distribution by minimum-wage rates of women e ployed in Royal Ordnance Factories, 1942[1]

Type of factory or product	Type of work	Basis of wages	Minimum rate for 47-hour week (in shillings)	Percent of women in total (approximate)
Fuzes, small-arms ammunition, small arms.	Light engineering work commonly performed by women.	Women's rate	43	18
Filling	Filling propellants and high explosives into containers.	do	46	56
Shells	Manufacture of shells and certain cartridge cases.	Youths' rate at 20 years.	51	4
Explosives	Manufacture of propellants, explosives, and acids—previously carried out by male labor.	80 percent of men's rate.	57	12
Guns	Manufacture of guns, gun barrels, gun mountings, etc.	Men's basic rate plus 75 percent of men's industrial bonus.	[2] 59	10

[1] Source: Great Britain, Parliamentary Debates, House of Commons Official Report, Vol. 383, No. 103, cols. 525–526, September 11, 1942.

[2] Minimum rate for areas other than London, where it was 62 shillings for a 47-hour week.

Table 5.—Increases in average weekly earnings of men and women in 16 industry groups, October 1938 to January 1943[1]

Industry group	Percent increase in average earnings October 1938 to January 1943			Ratio of women's to men's earnings (percent)	
	All workers[2]	Men (21 years and over)	Women (18 years and over)	January 1943	October 1938
All industries	65.1	64.9	80.0	51.4	47.1
Iron, stone, etc., mining and quarrying	48.7	51.3	----	----	----
Treatment of nonmetalliferous mine and quarry products	52.6	58.6	96.3	55.3	44.7
Brick, pottery, and glass	56.1	57.9	69.2	47.2	44.1
Chemical, paint, oil, etc	55.8	59.9	87.8	55.4	47.2
Metal, engineering, and shipbuilding	72.6	75.3	99.3	50.5	44.4
Textiles	62.3	63.2	58.3	53.8	55.5
Leather, fur, etc	53.5	55.4	39.6	49.0	54.5
Clothing	50.0	47.9	47.6	50.9	51.0
Food, drink, and tobacco	46.6	48.3	45.6	49.5	50.4
Woodworking	43.6	45.4	59.7	55.8	50.8
Paper, printing, stationery, etc	32.3	27.6	37.4	43.6	40.5
Building, contracting, etc	43.6	43.4	----	55.4	----
Miscellaneous manufacturing industries	68.8	66.7	71.4	47.3	46.0
Transport, storage, etc. (excluding railways)	38.3	42.5	92.4	67.3	49.9
Public utility services	28.8	33.3	62.3	53.4	43.9
Government industrial establishments	38.4	62.0	61.3	59.2	59.5

[1] Source: Ministry of Labor Gazette, June 1943.

[2] Includes earnings of youths, boys and girls, in addition to adult men and women.

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WOMEN IN WAR INDUSTRIES IN GREAT BRITAIN

October 1941

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

WOMEN IN WAR INDUSTRIES IN GREAT BRITAIN

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U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

WOMEN IN WAR INDUSTRIES IN GREAT BRITAIN

In a program for national defense, policies as to training, up-grading techniques, wage scales and hours for women must be decided. From current British experience, as well as our own experience 1914-18, we can examine many of the problems with which we shall be faced and the means that might be taken to solve them. Our previous war experience showed us that the increased employment of persons unused to industry results in many other problems of a health, welfare or social nature.

The present report on the British situation is based largely on published materials of the British Ministry of Labor, reports of the House of Commons, daily newspapers and periodicals, and publications of the International Labor Office, and of the United States Department of Labor. The Women's Bureau has received direct communications from the Ministry of Labor on questions involved in the industrial mobilization of women, but until very recently few extensive first-hand details were available as to the actual processes on which women are at work.

WOMEN AND THE LABOR SUPPLY

The process of readjustment to war production is not smooth and the adverse effects fall particularly heavily on women. In September 1939 there were in Great Britain nearly 175,000 more women unemployed, but 99,000 fewer men unemployed, than in the preceding month. Furthermore, although total unemployment dropped below the August 1939 figure by March 1940, women's unemployment did not fall below that of August 1939 until February 1941, just before the month when the Government began to register the supply of woman labor.

Women particularly were affected by the closing of plants under industrial concentration plans, many of which were in industries in which women are a large proportion of the workers, as in cotton, hosiery, boots and shoes, pottery, and so forth. (For more detail see the section below on Redistribution of Labor Supply.)

INDUSTRIAL REGISTRATION ORDER

On January 21, 1941, a year and a half after British involvement in war, the Minister of Labor and National Service, Mr. Ernest Bevin, announced in the House of Commons that . . . "We have now reached the stage where . . . we shall have to call into service many women who in normal circumstances would not take employment." 1/

On March 13, 1941, the Minister of Labor appointed the Women's Consultative Committee to aid in planning the registration. 2/ This Committee sits under the Chairmanship of the Parliamentary Secretary to the Ministry of Labor.

The Registration for Employment Order was issued March 17, 1941, 3/ under the policy that "nothing that a woman can do or can learn to do, however important, should be allowed to absorb a man of military age." The demand for women workers came as a result of the low reserve of unemployed plus the completion about this time of many factories built for war production.

Compulsory industrial registration of women 20 and 21 began in April and May 1941; older men also were registered. Excluded were men registered for the Army or exempted from the Army, and women serving in 1 of 11 listed voluntary or technical war services. Interviews of special groups of the women registrants to determine their capacities were undertaken shortly afterwards. 4/ Interviews were conducted by

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1/ Great Britain. Parliamentary Debates. House of Commons Official Report. Vol. 368, No. 14, Col. 95. January 21, 1941. (Hereafter cited as Commons.)

2/ The committee consists of 8 women members. International Labor Review, vol. 43, No. 5, p. 574, note 4. March 1941. See also Ministry of Labor Gazette, vol. 49, No. 3, p. 52, March 1941. (Hereafter cited as Gazette.)

3/ Gazette, Vol. 49, No. 3, pp. 73 and 151-2, March 1941.

4/ By July 24, 1941, approximately 1,230,000 women under 25 years of age were registered. Interviews for 600,000 had been scheduled and were taking place at the rate of 40,000 a week. Further registrations of women born between 1910 and 1916 and of men born between 1895 and 1897 (about 3 million persons) were scheduled before the end of the year. See New York Times, July 25, 1941. See Commons Vol. 371, No. 62, May 15, 1941, and Manchester Guardian, May 7, 1941.

women officers of the Ministry of Labor from supervisory and managerial grades, in which nearly 1,400 women are employed. It was planned to examine first women who were unoccupied or in less important work. 5/ Women university students and women studying for certain vocations were not to give up their studies for other work. 6/

In general, it was anticipated that most of the women needed in war industries would be drawn from non-essential industries or services, while the Women's Services with the Army, Navy, and Air Force would be recruited from the unoccupied. As far as possible it was planned to permit the woman interviewed to express a preference for the type of work she wished to do. It was not expected that stringent measures would be necessary, but that the "voluntary principle" used in dealing with employers and workers in labor supply problems would apply. An indication of the type of penalty that can be applied occurred in the case of an unemployed buttonhole machinist who refused munitions work 200 miles from home and was disqualified from unemployment insurance benefits for 6 weeks. 7/ Of those interviewed less than 2 percent have disagreed with the judgment of the interviewer that they should transfer to more urgent work.

Of 267,000 women interviewed up to July 12, over 67,000 were placed on the National Work Register or transferred at once to other work. Usually from one-fourth to one-third of those interviewed are found available for work of national importance. (Ministry of Labor Gazette, Vol. 49, No. 8, August 1941, p. 156.)

REDISTRIBUTION OF THE AVAILABLE LABOR SUPPLY

Women's employment has been to a great extent in consumption industries, and hence women workers in Great Britain have been affected to a high degree by the transfer of workers from non-essential to war industries. This became an important part of the policy of industrial mobilization by the end of 1940. 8/

5/ Commons Vol. 370, No. 40, col. 323. March 20, 1941.

6/ Manchester Guardian, April 18, 1941. The vocations in which full-time students were excepted included accounting, agriculture, architecture, chemistry (including dispensing), chiropody, dentistry, domestic science, engineering, law, librarians, massage, medical midwifery, music and dramatic art, nursery nursing (including day nurseries), nursing personnel management, physical culture, radiography, sanitary inspection, social service (including housing, estate management, hospital almoners, club leaders, health visitors, welfare workers, child-guidance workers, home teachers for the blind), teaching and veterinary surgery.

7/ London Times. March 22, 1941.

8/ Schemes for transfer of operatives to munitions and other war industries on a voluntary basis were set up in the cotton industry, the printing machinery trades (June 17, 1940), coal mining (late 1940), boot and shoes and hosiery.

The Board of Trade began early in 1941 to establish the amount of reduction for each non-essential industry and to recommend a method to ensure orderly and systematic release of plants and of labor to munitions industries. 9/ Remaining production is carried on by full-time "nucleus" firms. By April 1941, 500 schemes had been investigated, of which 200 were approved. It was estimated that 750,000 men and women would be release for arms manufacturing by the concentration program, and that between 800 and 900 plants would eventually be closed. 10/

In carrying out schemes of concentration a number of factors must be taken into account:

(1) The interests of the "concentrated" firms must be safeguarded;

(2) Remaining firms must be in non-munition areas so as not to tax the labor supply and facilities essential to the war industries;

(3) The labor released should be adaptable;

(4) Nucleus firms should take on older workers of closed firms so that the younger workers are available for war industries;

(5) Release of labor should be adjusted to needs of the war industries. 11/

The severe cuts that have to be made in the cotton trade are accompanied by special problems for women owing to the large number of married women employed. Eighty percent of the operatives are women and 50 to 60 percent of these are married and consequently immobile. 12/ However, the cotton industry is expected to provide 50,000 workers by transfer for war industry and, according to the Minister of Labor, without a period of unemployment so far as possible.

Announcements regarding concentration schemes in other industries stated that about 20,000 women were to be released from the hosiery industry, 1,000 skilled women in the Leicester boot and shoe industry

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9/ Industries affected are (1) those covered by the Limitations of Supplies Orders, which therefore cannot obtain raw material sufficient for full operation: pottery, blown glass, hosiery, lace, gloves, perfumery, carpets, toys, cutlery, jewelry, silver and electroplate, light leather goods, corsets, braces, sports goods, fancy goods of plastic, photographic goods, mechanical lighters, combs, linoleum, lighting fittings, musical instruments, pens and pencils; and (2) industries subject to raw material control: cotton, woolen and worsted, paper, boots and shoes, linen, silk. (See Gazette, April 1941, p. 77.)

10/ Manchester Guardian, April 17, 1941, p. 6, Christian Science Monitor, April 4 and April 22, 1941.

11/ Gazette, April 1941, p. 77.

12/ Manchester Guardian, April 19, 1941, p. 8.

were being transferred and that workers were being released in the leather trade, cutlery, and rayon. 13/

RESERVATION OF WORKERS IN ESSENTIAL OCCUPATIONS

To a large extent it is expected that vacancies in essential industries will be filled by release of women workers from non-essential industries and that vacancies in the Women's Auxiliary Services, the Nursing Services, the civilian services, and the Women's Land Army as well as some industrial needs will be filled from the registrations for employment. 14/ A third mechanism discourages withdrawal of workers to the defense services at the expense of essential industries needs—the Schedule of Reserved Occupations and Protected Work. 15/

Regardless of age, women are reserved in the occupations listed as reserved, and also in a special group of 85 occupations applying to women only, except that in retail trade the age of reservation is 25 years. This means that women in these occupations may be accepted for whole-time service in National defense only in their trade capacity. However, women in any occupation may be accepted for the Women's Land Army, nursing, or first-aid work, and women under 25 in retail trade may be accepted for any type of national service. (The list of occupations in which women only are reserved is shown at the back of the present report.)

PROCESSES DONE BY WOMEN IN WAR INDUSTRIES

(See list at end of this report)

Until recently relatively few details were available as to specific processes done by women in Great Britain. The information at hand is confined largely to 4 of the primary defense industries—aircraft, electrical, ammunition, and ordnance—and to secondary production, such as food, services, transportation and communication, and the civil service. In the defense industries indications are that fairly large proportions of women are at work. Reports state that 40 percent of the workers in a large aircraft plant are women, with the probability that the proportion will rise to 80; they operate a considerable number of machines and do a great deal of riveting. It is reported that 80 and 90 percent of the workers in 2 munitions plants are women; and that one-sixth of the women in an ordnance plant manufacturing antiaircraft guns are women.

13/ Manchester, Guardian, February 6, 1941; March 1, 1941, p. 8 April 17, 1941, p. 6.

14/ Gazette, May 1941, Vol. 49, No. 5, p. 94.

15/ Great Britain. Ministry of Labor and National Service. Schedule of Reserved Occupations and Protected Work, April 10, 1941.

Women's abilities in performing on light operations requiring manual dexterity are used to a great extent. Women do such work, for example, as the delicate operations requiring great accuracy in an airplane instrument factory, some of these taking as much as 2 years to learn; light riveting, drilling holes and stamping or pressing small pieces of aluminum; riveting framework, sewing fabrics, painting the interior of fuselage; assembling parts, and welding in airplane plants; the various gauging, drilling, turning and assembling operations required to make fuses in munitions plants, as well as machining fuses, soldering, testing screws, and lacquering fuse caps; assembly work on radio sets and other electrical instruments; and certain of the processes in ordnance manufacture where deftness is particularly essential.

On the other hand, women are also reported to be doing work of a heavier type; in the manufacture of trench-mortar bombs they replace men on a heavy press; in munitions manufacture they handle large cartridge cases; in the manufacture of guns they operate large lathes and milling machines, boring and rifling antiaircraft, field, and naval guns; and in a tank factory, among the work done by women is lathe operation.

Many women also work in food industries; in civil service; on railway, bus, and subway jobs, and the various miscellaneous occupations. Women are employed in London in transport garages. Over 10,000 women are working for the London Passenger Transport Board to replace men in all types of work in subway stations, except driving trains. Their work in the Auxiliary and Volunteer Services is extensive, and some of it highly specialized. (See list at back of this report.)

METHODS OF TRAINING WOMEN WORKERS

In Great Britain women were not included in the government training program during the first year of the war, either in the government training centers or in the government-fostered scheme under the technical colleges. As long as there are considerable numbers of unemployed males it will be difficult to push an extensive training program for women. On its own initiative the Women's Engineering Society instituted courses to train women supervisors, beginning in May 1939. Most of the trainees completing the courses obtained production jobs, but some proceeded to more responsible work after a period in the shop.

As the labor supply picture changed, shifts were made in the policies of the government training program. Courses in the government centers were restricted to those specifically adapted to war production, training periods were shortened, and by January 1941 a beginning was made with the training of women. Somewhat earlier, supervision of the training scheme of the Women's Engineering Society was assumed by the government and courses for women were being established in the technical colleges as the need arose. The bulk of the training must be done within the plants themselves. Methods of training women within plants are described by Miss Caroline Haslett, adviser to the Minister of Labor on Women's Training as follows:

> "In some employers' works the most modern methods of training have been adopted. For instance, special methods of selection insure the reduction of wastage to a minimum. Women and girls are given the training for which they are suited and are placed in employment which makes the best use of their mental, physical and social aptitudes. The results of motion study and time study have also been applied, not only in industry, but in training, and it has been found possible to prevent the trainees from acquiring the habits which study has proved to be uneconomic."

SUBDIVISION OF INDUSTRIAL PROCESSES FOR EMPLOYMENT OF WOMEN

During the last war there occurred a large influx of women into industry, which required the extensive development of training methods and dilution techniques.

The introduction of women in the current war does not require so extensive a readjustment of processes and addition of mechanical aids as was necessary in 1914-1918, because industrial mechanization and subdivision of work have developed constantly since that time, and because more and more women have continued to be employed on processes suited to them. These developments in the post-war period created a situation for women in industry in September 1939 that differed from that of 1914. This condition was recently summarized by Caroline Haslett of the engineering profession, Adviser on Women's Training to the Ministry of Labor and National Service, as follows:

> "After the war . . . came the improvement in factory conditions, the splitting up of processes resulting in simplification, the mechanization of production, the cheapness of women's labor, and the new industries, such as automobile, electrical and aeroplane construction, where there was not a tradition of men's labor.
>
> "The war and early post-war years were marked by developments in electrical engineering and in the electrification of domestic, commercial, and industrial life. Those parts of the industry which were closely allied to mechanical engineering were affected by the traditions of that trade, but on the lighter electrical components of the industry use was made of women labor. For instance they are engaged in coil winding, lamp making, assembly and many other operations. Similarly in radio manufacture, a very new industry, and one not requiring great physical strength, women are largely employed. In such industries, too, equipment generally is of very modern design with emphasis on simplicity and ease in working.

> "The necessity in the war years to bring work down to the capacity of untrained, or only slightly trained women unaccustomed to factory life, had its influence on post-war industry. The breaking down of processes into their components meant turning production into a series of simple actions, each capable of being effected by machinery or by workers who were willing to become automatons . . . " 16/

That there was no large influx of women into munitions at the beginning of the present war was due to the fact that radio or electrical shops where women were already working turned to producing munitions, and many of the munition factories had employed women on some processes ever since the last war. 17/ So much of the work of national importance being done by women is in fields now considered customary for women that there is still little dilution in the sense of the World War when women replaced men by undertaking work which it was previously thought impossible for them to do. It has been stated:

> "A very limited number of women were in the engineering trades before 1914. Processes were subdivided so that women could do then, and this subdivision not only continued after the war, it has developed ever since. Dilution of labor does not mean today what it did 25 years ago. Engineering trades are now based largely on women's labor in some sections and men's in others and it is very difficult to draw a hard and fast line as to which is men's and which is women's work for it varies in different parts of the country. In those areas where women's work has been tremendously developed, the employment of further numbers of women in engineering and munitions is merely a development; it is not dilution." 18/

Within the engineering industry it was estimated that the work force must be diluted to the extent of 750,000 people in order to meet government production programs. Since certain types of manufacture are

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16/ Haslett, Caroline. "Women in Industry." The Woman Engineer. March 1941.

17/ The Minister of Labor pointed out that "it must not be assumed that there is the same reservoir of women available for munitions work that there was in the last war. Far more women were in industry in 1939 than in 1914, for the whole situation in factory and workshop had changed." See Commons, Vol. 368, No. 4, Col. 90. January 21, 1941.

18/ Scott, Peggy. British Women in War. London, Hutchinson and Co., Ltd., 1940. P. 159. The engineering industry includes all operations in the manufacture, assembly, and repair of metal articles involving the use of machine tools, whether the principal work of the firm, or merely subsidiary, as in a maintenance department. See Gazette, vol. 48, No. 7, p. 135, July 1940.

less susceptible of dilution than others, some firms must employ a much higher proportion of women, or a much lower proportion of skilled labor, than others.

> "Analysis of the returns made by industry to the Ministry of Labor of the grades of labor at present engaged within the industry, in the light of increased production programs, show that skilled labor must on the average be reduced from 40 to 30 percent of the total labor force engaged, an over-all reduction of 25 percent in the individual factory. Also that female labor must be increased to 30 percent of the total labor force." 19/

Dilution of the work force of a plant may involve reorganization of the work process so that less-skilled operations are removed from the duties of the skilled craftsman and turned over to semiskilled operators. When customary procedures are regulated by trade-union rules and customs, agreement between employers' and workers' organization is required to effect the changes. The necessity of dilution in order to expand the labor force and to spread skilled labor over the widest possible area was realized at the outset of the war, but the disadvantages that exist for both employers and trade-unionists tended to slow the negotiations. The Minister of Labor described other action taken toward organization of industry so as to spread skilled workers as follows:

> "When I introduced this inspectorate, 20/ during the first few weeks that I was in office, the amount of skilled labor--using the term in its ordinary sense, as meaning apprenticed labor--in . . . one aircraft works was 28 percent. I then proceeded with training, and brought trainees from my training centers to fill up that works, taking skilled men from that works to open other works for the expanding airfraft industry, so that we could get a spread, or rationing, of tool makers and other people. That works today has 9 percent of skilled workers as against 28 percent when I took office 7 months ago; and it has increased its production tremendously by the use of new methods." 21/

19/ Jenkins, B. C. The Utilization and Training of Labor Under War Conditions. London. The Institution of Production Engineers, p. 5.

20/ The staff of 400 to 500 inspectors whose duties included ensuring that training, upgrading, dilution and distribution of skilled labor were done effectively. Regulations made under the Emergency Powers (Defense) Act of 1939-40 gave the Ministry of Labor and National Service such authority. See Gazette, June 1940, p. 156. For a description of the machinery for administering labor supply policy see International Labor Office, Labor Supply and National Defense. Studies and Reports, Series C, No. 23, Montreal, 1941, pp. 209-213.

21/ Commons, Vol. 367, No. 3. Cols. 298-9, November 27, 1940.

In pointing out the fact that introduction of untrained women into engineering can be done successfully the Chief Inspector of Munitions Labor Supply in a semiofficial talk mentioned 4 plants specifically. In an airframe plant, 1,622 women have been introduced, in 2 aeroengine factories 830 and 1,715 respectively, and in a plant manufacturing guns, tanks and torpedoes, 250 women. They work as capstan operators, on milling, grinding and gear-cutting machines, in fitting and assembling, and on inspection. 22/

The entire subject of the subdivision of industrial processes, the spreading of skilled labor and the use of the less skilled is closely bound up with wage scales. For information as to wage agreements affecting women see also the section below on wages.

THE BASIS FOR PAYMENT OF WOMEN RECRUITS TO INDUSTRY

In agreeing to changes in trade practices making possible the government's policy of using women wherever possible, the unions stipulated that such innovations should continue only for the duration of the emergency and that the introduction of women on men's jobs should not be used to break down wage rates. Agreements permitting the use of women on men's work but providing that after a suitable probationary period women shall be paid men's rates, or awards, are applicable for engineering, road transports, railways, electricity supply, boot and shoes, paper mills, printing, technicians in the film industry, chemicals, soap and candles. Perhaps the most outstanding of these arrangements are as follows:

> Engineering industries.—An agreement between the Engineering and Allied Employers' National Federation, the Amalgamated Engineering Union, the Transport and General Workers' Union and the National Union of General and Municipal Workers, on May 22, 1940, provided that women employed in the manufacture of engineering products on men's work are to be considered as temporarily employed, for the duration of the war only, and a record is to be kept of all such changes. Women so employed are to serve an 8-week probationary period, at the women's national minimum-wage rate, followed by 12 weeks at this rate plus one-third of the difference between the women's and men's rates and one-third of the difference between the women's and men's bonus. For a further 12 weeks they are to be paid at three-fourths the men's rate and of the men's bonus. Then if they are "able to carry out the work of the men they replace without additional supervision or assistance" they will receive the full men's rate and bonus; otherwise the rate is to be negotiable. The agreement makes no restrictions on extending the employment of women on women's work to additional plants, nor to replacing boys under 21 by women. 23/

22/ Jenkins, B. C., Op. Cit. in footnote 19, p. 9.

23/ Gazette, Vol. 48, No. 6, June 1940, p. 1589.

Road passenger transport industry.—An Industrial Court Award of April 1940 established the wages of women as conductors on trams, omnibuses and trolley busses, as follows: 24/

"(1) Women conductors being employed to replace men shall be over the age of 18.

"(2) The scales of pay of women shall be for the first 6 months of service not less than 90 percent of the adult male conductor's commencing rate and thereafter the scale of pay and increments applicable to adult male conductors. Women under 21 years of age, during such time as they are under that age shall receive not less than 90 percent of the adult male conductor's commencing rate. Women who during service obtain the age of 21 and have served for not less than 6 months shall receive the full rate.

"(3) The conditions of employment of women conductors shall be the same as those of adult male conductors under an agreement of 21st October, 1937, save that the guaranteed week may be for 40 hours instead of 48 hours, all time worked in excess of 40 hours being paid for at overtime rates."

Railways.—The agreement of the National Union of Railwaymen in Great Britain provided that women should receive men's wages after a 3 months' probationary period at 8 percent below the men's minimum. 25/

Electrical supply industry.—An agreement of the National Joint Industrial Council for the industry provides that women on men's work shall be paid at the same rate as men of the same grade after a 6 months' probationary period at 90 percent of the men's rate. 26/

Boot and shoe industry.—An agreement between the National Federation of Boot Manufacturers and the National Union of Boot and Shoe Operatives specifies a graduated scale for one month for women transferring to men's departments followed by full application of men's piece rates, and the full minimum for women entering the industry after 12 weeks, 6 at 15 percent and 6 at 10 percent below the minimum. 27/

24/ Award No. 1755, April 19, 1940. See Gazette, Vol. 48, No. 5, p. 153. May 1940.

25/ International Labor Review, Vol. 43, No. 3, March 1941, p. 340.

26/ Labour, March 1941, p. 781.

27/ Industrial and Labor Information, April 22, 1941.

Soap and candles.--Where women perform less than full duties, the aggregate wages of male workers shall be divided between females in proportion (to the share of work they perform). 28/

Such arrangements cover only a portion of the women in war production, as other industries make no provisions for payment of men's rates to women on men's work, and lower rates are the rule for women on "women's" work. Much of the work now being undertaken by women has been "women's" work in certain plants or certain sections of an industry, so that their earnings are generally based on lower rates. In an airplane plant, for example, where wage rates for men are higher than those for women, experienced women average about £6 weekly, rising to £8 in exceptional cases, while skilled men easily earn up to £15 a week. Payments to trainees under the government-training schemes, which are designed to be roughly equivalent to what the individuals could earn by directly entering industry, start at 38s. for women and 60s. 6d. for men.

LIMITATIONS TO THE EXTENSION OF HOURS OF WORK

Although the subject of hours regulation has not been covered in this report, a brief statement may be made in this connection. 29/ At the outbreak of war the standard workweek in Great Britain was about 48 hours. Legislative restrictions on hours applied only to women and young persons and to special groups of men; for the most part limitations on hours of work for men were contained in the collective bargaining agreements which established overtime pay at higher rates after 47 or 48 hours were exceeded. In the effort to meet the demand for workers, particularly those of the skilled grades, restrictions on hours were at first relaxed and then after the collapse of France they were ignored.

The immediate effect of the increase in hours to 70 or 80 or even 90 for men, women, and young persons, with work for 7 days a week, was an increase in output. It soon became apparent, however, that the 1914-18 experience would be repeated and that production could not be increased indefinitely through increased hours.

28/ Labour. April 1941, p. 809.

29/ For a comprehensive survey of hours regulations see U.S. Department of Labor, Wage and Hour Division, War Time Regulation of Hours of Labor and Labor Supply in Great Britain, June 1941. See also Monthly Labor Review. "Hours and Efficiency in British Industry", by Max D. Kossoris, June 1941.

From the current experience the Minister of Labor concluded:

> "The hours worked by women, especially since June 1940, have in a number of cases been unproductively long. The experience gained during the last war is conclusive that long hours impede production and while no common standard can be laid down for all types of work, it can be accepted that in general the maximum should vary only between 48 and 56 per week." 30/

SOLVING VARIOUS HEALTH AND PERSONNEL PROBLEMS

When women normally outside the labor force are brought into industry the problem is more than one of technical methods of dilution or of training practices; it is also a psychological and social problem. With this in mind, the Ministry of Labor issued a leaflet giving advice to employers on the employment of women, particularly to those who had no women on the force previously. 31/

In order to make the entry of women in factories as easy as possible, the Ministry recommended the appointment of a woman personnel officer. During the last war it was stated that "A point on which all those who have been most successful in the introduction of women are agreed is the importance of employing women supervisors and forewomen." 32/

Suggestions were made as to interviewing and hiring practices, and it was urged that if possible arrangement of hours of work be adjusted so as to facilitate the employment of women with domestic responsibilities. A large telephone and cable company reported great success with an hour shift enabling employment of housewives for half the day. One shift worked 8 to 12:30 every weekday, the other 12:30 to 5:30 Monday through Friday. There is a 10-minute break in each shift for refreshment, but each shift lunches at home. Hourly and piece-work rates and bonuses are the same as for full-time work.

A British bulletin reports that thousands of wives and home-tied women will soon be doing part-time work as shop assistants to relieve girls for war work. One store in Birmingham has already freed

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30/ Great Britain. Ministry of Labor and National Service. The Employment of Women, Suggestions to Employers. March 1941. P. L. 87, p. 4.

31/ Great Britain. Ministry of Labor and National Service. The Employment of Women. Suggestions to Employers. P. L. 87.

32/ Great Britain. Ministry of Munitions. Dilution of Labor Bulletin, Vol. II, No. 8, May 1918.

200 girls in this way, offering women between 36 and 60 any 1 of 3 categories: (1) Afternoons only, (2) Thursdays and Saturdays only, or (3) five full days a week. 33/

Health and production problems of workers are solved in various ways. 34/ In one plant it was reported that "By improving the lighting from 2.1-to 12.3-foot candles on a job of assembling carburetors, a 12 percent increase in production was recently achieved at a cost of only 0.9 percent of the wages bill." 35/ Another large company has installed a sunray lamp to aid in maintaining the workers' health. Similar considerations have been the basis for a program of expanding factory canteens. 36/

With the dilution of labor by the influx of persons into industry who are new to it, or who have reentered after some time, the problem of increasing industrial accidents has developed. Data for 1940 showed an increase over 1939 which is not accounted for by the expansion of numbers alone, but appears to reflect the employment of inexperienced workers under difficult conditions. The figures are as follows: 37/

	Fatal Accidents	Nonfatal Accidents
1939.....	1,104	192,371
1940.....	1,384	231,030

The law requires that all potentially dangerous machinery should be adequately guarded or fenced, and in certain industries the provision of protective clothing of officially approved design is compulsory. 38/

33/ Bulletins from Britain. No. 56. September 24, 1941. (British Library of Information, New York.)

34/ For recommendations as to the best proven standards for the employment of women in the United States, see Women's Bureau Special Bul. No. 1.

35/ Engineering Bulletin of the Ministry of Labor and National Service, No. 1, June 1941, p. 24.

36/ Up to 70 percent of factories employing over 1,000 persons have canteens. Commons, Vol. 368, No. 14, Col. 90. January 21, 1941. According to an order of the Ministry of Labor and National Service any manufacturer employing more than 250 employees may be required to provide a factory canteen. Gazette, Vol. 48, No. 7, p. 323. December 1940.

37/ Industrial Welfare and Personnel Management. February 1941, pp. 26, 39.

38/ Engineering Bulletin No. 4, September 1941, p. 88. Industries such as manufacture of electric accumulators, compounds of lead, lead painting, chromium painting, etc.

OCCUPATIONS IN WHICH WOMEN ONLY ARE RESERVED 1/

Notes.--1. Women in these occupations are reserved irrespective of age, except where otherwise stated.

2. In the industries in which all women workers (other than labourers) engaged in productive processes are reserved, the occupations are not specified in detail, the industry only being mentioned.

Occupation

* Aircraft body building
* Airframe building
Assembler, hand (small components or articles)
* Balloon making
* Basket making
* Bedding making
* Bedstead making (iron, brass)
* Blind making
* Boot and shoe manufacture
* Cane and rush working
+ Civil servant (non-industrial) minor and manipulative grades
Coil winder (light), bobbin winder
* Cutlery manufacture
Cutter, joiner (cinematograph film)
Dairymaid
Distributive trades (retail)—all women workers of 25 years of age or over
Domestic worker in hospital or institution (other than in private domestic service)
Dry battery making

Occupation

* Dyeing and cleaning (garments, etc.)
* Electro plating (except galvanising and tinning)
* Enameling (metal and metal goods)
Examiner (metal trades)
* Fibreboard manufacture
Filer (miscellaneous engineering and metal trades)
* Fishhook making
* Food bottling, canning and packaging
* French polishing
* Gardening, nursery, seed growing, fruit growing, hop growing
Gauger (metal trades)
* Gold, silver, white metal, plated ware working
Grader, examiner (cinematograph film)
Guillotine operator, cutting machine operator (metal)
* Gutta percha goods manufacture
Hospital almoner
Housekeeper, assistant housekeeper (other than in private domestic service)

* All women workers (other than labourers) on productive processes other than those in occupations specified in Part I. [Women found in occupations listed in Part I are already reserved by the application of that part of the schedule.]

+ As from stage "B".

1/ Great Britain Ministry of Labor and National Service, Schedule of Reserved Occupations and Protected Work. April 10, 1941, p. 104. The schedule consists of four parts: I. Reserved Occupations; II. Protected Establishments; III. Exceptions From Part I and Special Arrangements; IV. Occupations in Which Women Only Are Reserved.

Occupation

Housing manager
* India rubber goods manufacture
Inspector (metal trades)
* Insulation board manufacture
* Japanning (metal and metal goods)
* Jewelery making
* Key making
* Lace finishing, lace manufacture
* Lacquering (metal and metal goods)
* Latch making
* Laundry service
Linen keeper (other than in private domestic service)
* Lock making
Matron of institution, home or hostel, working in connection with social services for the physically or mentally handicapped
* Mattress making
* Mica processing and micanite manufacture
Midwife
* Millboard manufacture
* Needle making
Nurse (other than children's nurse)
Paper, paper felt, paper box-board manufacture, coating and pasting
* Parachute making
Photo printer (true to scale, including blue print)
* Photographic processing (cinematographic film)

Occupation

* Plastics and plastic goods manufacture
Postal clerk (subpost office, not civil servant)
Postwoman
Press operator (hand or manual)
* Radiator (heating) assembling
* Rush and cane working
Schoolmistress, teacher, other than school mistress in a private school
* Scissors manufacture
* Sheet iron, sheet metal working
Social service worker (not industrial), salaried, whole-time
Solderer, soft solderer
Sorter, sorting clerk (postal)
Stewardess
* Stove, grate, range, radiator, refrigerator assembling
* Strawboard manufacture
Telephonist (post office)
Tester (metal trades)
Tracer
* Upholstress
Viewer (metal trades)
* Wallboard manufacture
* Warehousing
* Watch and clock making
* Waterproof goods manufacture
* Weighing machine making
* Willow, cane, rush working
* Wire goods making

* All women workers (other than labourers) on productive processes other than those in occupations specified in Part I. [Women found in occupations listed in Part I are already reserved by the application of that part of the schedule.]

OCCUPATIONS OF WOMEN IN THE AUXILIARIES

Each of the three main branches of the war forces has its women's auxiliary. Since April 1941 the Auxiliary Territorial Service and the Women's Auxiliary Air Force have had full military and air force 1/ status although operating under a separate organization, and on June 15, 1941, more favorable pay conditions and changes in rank were ordered for the Auxiliary Territorial Service by the War Office. 2/ Numbers of women in these services are approximately as follows: 3/

Auxiliary Territorial Service.....	150,000
Women's Auxiliary Air Force.......	200,000
Women's Royal Naval Service.......	30,000

Below are listed occupations in which members of the various auxiliaries are engaged:

Auxiliary Territorial Service: 4/

Cooking 5/
Cleaning
Clerical work
Driving ambulances vans and staff cars
Observation post work, checking performance of gun fire
Orderlies
Ordnance workers
Searchlight and gun station duty 6/
Serving
Storekeepers
Telephoning
Teleprinting

1/ Commons, Vol. 370, No. 50, Col. 1699, April 10, 1941. They thus approach more nearly to the status of the 80 women who hold commissioned rank in the Royal Army Medical Corps. Commons, Vol. 370, No. 48, Col. 1404. April 8, 1941.

2/ New York Times, June 16, 1941.

3/ Life, August 4, 1941, p. 70.

4/ See Scott, Peggy. British Women in War. London, Hutchinson & Co., 1940, pp. 34, 40-42; P.M., Jan. 5, 1941, p. 6; Washington Post, July 21, 1941; Christian Science Monitor, Feb. 25, 1941.

5/ There are 4,500 A.T.S. cooks. Commons, Vol. 369, No. 34, Col. 1607, March 6, 1941.

6/ Commons, Vol. 370, No. 50, Col. 1699. April 10, 1941.

Women's Auxiliary Air Force: [7]

- Cooking
- Clerical work
- Driving
- Ground service [8]
- Instrument mechanics
- Mending folding balloons
- Operation of barrage balloons
- Plotting (maps and operations)
- Repairing
- Storekeepers (equipment)
- Telephonists
- Meteorology

Women's Royal Naval Service: [9]

- Chart plotting
- Ciphering
- Cooking
- Decoding
- Driving ambulances, busses, utility vans
- Messengers
- Naval postman
- Port superintendent
- Records and pay-roll work
- Stewards
- Storekeepers
- Telephoning
- Teleprinting
- Typing

In addition to these women there are approximately 2,000 [10] in the Women's Auxiliary Fire Service.

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[7] See Scott, Peggy, cited, pp. 51-53.

[8] In June 1941, members of the W.A.A.F. were receiving instruction in many of the ground duties at Royal Air Force stations, such as moving the wooden block before the plane takes off. London Times, June 10, 1941.

[9] See Scott, Peggy, cited, pp. 17, 23-24.

[10] Life, August 4, 1941, p. 70.

INDUSTRIAL PROCESSES REPORTED PERFORMED BY WOMEN OR MACHINES WOMEN OPERATE

The following list has been compiled from Nos. 1 to 4 of the Engineering Bulletin of the British Ministry of Labour and National Service, June to September 1941. It shows women engaged not only in their usual occupations as in electrical supply factories and in various types of assembling, inspecting, adjusting, testing and examining, but often in the heavier machine shop operations as well. For example, many are operating lathes, capstans, planers, presses, and drilling, grinding, roughing, milling, boring, and cutting machines. The frequent repetition of instances in text and by photographs indicates that these are not rare isolated cases, but represent types of work now quite usual for women. In a considerable number of instances women assemble or prepare tools and set up as well as operate their machines. The list following inevitably shows some overlapping under different headings.

Machine Shop Operations

Crane driving
Op. Herbert and Ward capstan and turret lathes
Op. turret and capstan lathes, including setting up
Op. lathes, milling, and grinding mchs. in making gyroscopes
Op. small surfacing and boring lathes
Op. 12-ft. face-plane lathe
Boring, turning, screw cutting, brass work on speeded-up 8-in. lathes
Op. mchs. for boring and screwing large nuts
Tube boring (diameter 17-20 in.)
Op. 16-ft. gun barrel boring lathes
Op. center lathes, router, hand miller, capstans, tapping mchs., in making torpedo parts
Op. 30-in. face-plane center lathes, making mine parts
Setters on center lathes and horizontal milling mchs.
Setting up automatic lathes of two types, selecting and grinding own tools, for work on ferrules, screws, bolts
Supervising and setting up capstan lathes; grinding tools
Turning out hydraulic pump parts on a Gershot compound cross-feed turret lathe including setting up
Setters, chiefly of revolving turret mchs.
Op. and setting up Mikron turret lathes
Op. Do-all saw and filing mch. in making jigs
Machine engraving
Feeding light reeling mchs. in steel warehouses
Op. heavy mch. tools producing 25-lb. shells
Shell turning
Op. in turbine-blade section
Op. a Herbert 2-A automatic mch.
Press tool setting
Op. 450-ton press (airdraulic or hydraulic)
Tool setting for fly press work
Setting and op. power presses
Op. an 8-spindle Acme-Gridley mch.
Heavy op. in making rotol hubs for anti-aircraft guns
Op. shaping mchs.
Drop stamp driving
Hammer driving at a stamping works
Hammer driving in railway shops, including drop stamping and electrical pneumatic hammers. Repairs made as well as new construction. (Women handle hammers more gently, so repairs needed are fewer.)
Forging and machining crank shafts, forgings for gear blanks, engine forgings
Tapping holes by hand in shell making
Tapping in partly-assembled tanks; 1/4 to 3/8 in. taps on 90-100 tons tensile steel
Op. Sunderland gear planers
Op. Fellows gear sharpeners
Making cores for mch. tool castings

Machine Shop Operations—Continued

Tool making
Tool grinding
Cutter grinding, including setting up mchs.
Grinder reamer flutes
Plain grinding
Grinding threads to fine tolerances
Grinding sliding vanes on small fuel pumps
Grinding of fine instrument work, including pivoting
Grinding and other work on ball races
Thread grinding and milling
Thread gauge grinding
Sheet iron cutting
Cutter milling on dental tools
Op. and setting up gear cutting, drilling and milling mchs., capstan lathes
Milling and gear cutting to limits .006 to .0005 in.
Operations on milling body castings in small fuel pumps for airplanes, including setting up
Milling and turning test pieces
Op. Churchill internal grinder
Op. Churchill external grinder
Op. surface grinder, with magnetic chucks
Op. Archdale miller
Op. Pratt and Whitney duplex spline miller
Thread milling, spline grinding, gear cutting
Optical grinding and polishing to limit .0000025 in.
Op. portable grinder on tank details
Rotary surface grinding
Grinding and center lathe op. on making square thread, screws, bushes, brake pins (upgraded from semiskilled rough center lathe turners)
As setters on milling mchs., dismantling cutters for resharpening and reassembling on arbors
Milling slots on a vertical milling mch.
Op. Heald internal grinders
Making sleeve valves of aero engines to tolerance .002 in.
Milling and grinding gun parts and aircraft parts (Brown-Sharpe mchs.)
Roughing and finishing points of shells
Rough turning forged bars (24 hrs.' training)
Op. radial arm drills
Op. Archdale sensitive drill
Op. Defries key setter
Op. shaping, milling, drilling, mchs.
Drilling gun components
Drilling and lining brake shoes for trailers
Machining anti-tank guns
Cutting internal and external square threads on screws
Heat treating small tools
Heat treating in aircraft
Welding steel fabricated plates, thickness 1/8 to 1½ in.
Flame cutting and electric welding on mch. tool work
Welding of all types on air and gas cylinders, ammunition trays, etc.
Welding balance weight sockets for aircraft
Flame cutting mch. work
Pneumatic riveting of main spars of aircraft, and de Bergue riveting of exhaust manifolds

Operations in Electrical Supply Manufacturing

- Wiring
- Coilwinding
- Relay assembling and electrical adjustment of relays
- "Bank wiring" in a telephone and cable company, involving soldering wire to tags
- Wiring apparatus panels and telephone and radio equipments, working from lay-outs and diagrams
- Assembling electrical apparatus
- Using jigs and fixtures to produce machined parts and small apparatus (electrical)
- Instructing in electrical assembly and coil winding
- Wiring stop lights on trailers

Assembling Operations

- Assembling light railway wagons
- Tank assembly
- Complete typewriter assembly (2,000 parts)
- Airplane assembly:
  - Complete wing
  - Cabin detail
  - Bomb sights
  - Wireless
  - Landing gear
- Assembling small fittings
- Assembling front ends of torpedoes and drilling very large holes
- On submarine engines, filing, fitting bolts and studs, assisting in assembly, coppersmiths' assistants
- In aircraft making tracing, spraying, assembling, riveting
- Assembling, testing, and balancing delicate gyroscopic instruments
- Fitting and assembling carburetors and their controls, chiefly for large aircraft

Inspecting, Examining, Adjusting, Testing

- Inspecting and viewing
- Inspecting factory thread gauges
- Final inspection on pistons and gudgeon pins
- Testing metals for hardness (calling for accuracy and involving monotonous routine)
- Inspection with use of optical instruments
- Vehicle examiners (8 wks.' training)
- Final inspection of airscrew equipment
- Inspecting plane tail-wheel pivot
- Adjusting gauges

Other Miscellaneous Operations

- Spraying the spinner of a plane
- Gauging with micrometer to ±.0005 in.
- Splicing wire rope
- Skilled work on pistons and gudgeon pins
- Working to micrometers on high-grade instrument work and re-setting stops
- Adjusting Bren guns, a "tricky job"
- Laboratory chemists
- Assistant research engineers
- Serving as mate to electricians and fitters
- Toolroom work and locksmith work
- Determining damping capacity of a special steel
- Electro-galvanising
- Listed as general laboring:
  - Covering aerofuel tanks with rubber
  - Stoking retorts and boilers
  - Gang work in fitting and erecting shops
- Riveting (bench work)
- Honing and lapping ball-race housings and hardened jig bushes
- Fabric work on planes
- Spectrographic analysis (demanding sensitive touch and quick observation)
- Coating files for hardening
- Brass finishing work
- Finishing ballistic caps for armor-piercing shells
- Repair and servicing of aero sparking plugs
- Dressing the hub of an air-screw
- Straightening bars by reeling
- Tooth rounding

Working to drawing and setting-up jobs in an optical factory, even to cutting double square threads

Viewing tooth profiles in the optical mch. on Mikron mchs. for gear hobbing and making adjustments

All operations in making dies for die-heads, including sawing strips, surface grinding, hobbing, heat-treatment, thread grinding, rounding backs and ends of dies.

Medical forms from

M. Ziegler,

Brach Co., Chicago.

(visited > Mis Dju)

BRING THIS SLIP FOR

PHYSICAL EXAMINATION

TO

K. G. RUNDSTROM, M. D.

INDUSTRIAL SURGEON

4136 W. LAKE ST. KEDZIE 5822

FROM

E-J-Brach & Sons

WORLD'S LARGEST MAKERS OF POPULAR PRICED CANDIES

4600 TO 4656 W. KINZIE ST. CHICAGO 44

DATE________________ HOUR__________

EMPLOYEE________________________________

☐ RECOMMENDED FOR WORK

☐ **NOT** RECOMMENDED FOR WORK

REMARKS:

SIGNED________________________________ M. D

(F-7602)A1A1-01

E. J. Brach & Sons, Chicago

MEDICAL DEPT.

Date ....

Employee's Clock No. ....

Complaint ....

....

Issued ....

....
Attending F-7606

E. J. Brach & Sons, Chicago

LINEN ROOM

DATE ....

PLEASE ISSUE ....

....

CLOCK NO. ....

....
Foreman's Signature

F-1144

E. J. Brach & Sons, Chicago

FIRST AID DEPT. PASS

DATE CLOCK NO. EMPLOYEE

TIME LEFT DEPT. FOREMAN

FIRST AID RECORD
(Do not write in space below)

DATE INJURED TIME LEFT FIRST AID

NATURE OF ILLNESS OR INJURY

REPORT AGAIN TO FIRST AID

ATTENDED BY

Form No.7605

E. J. Brach & Sons, Chicago

To Medical Dep't. SICK BENEFIT REPORT Date

Please investigate the reported illness of:

No. Name Address Phone No.

Payment Due W.E. 19 . Payable 19 .

Service entitles Payments. Payroll Signature

NURSE'S REPORT

I have investigated the illness of above named employee, who has been in the employ of E. J. Brach & Sons, since
and find the following condition existing:

Previous Benefits

Employee Signature Nurse Signature

Sick Benefit Allowed

Superintendent Signature

Form 7608

INSTRUZZIONI PER TRATTAMENTO A DOMICILIO

E. J. Brach & Sons
Chicago

Comprate 10 soldi di Acido Borico Cristallizato.

Non levate la fascia dalla ferita.

Lavate un recipiente finche ben pulito, poi scottatelo con acqua bollente.

Bollite un litro d'acqua in questo recipiente e fatela raffreddare moderatamente.

Aggiungete in quest'acqua un cucchiaio da tavola di Acido Borico Cristallizato.

Ammollate____________________per__________minuti ogni______________ore.

Tenete ogni altra parte del vostro corpo fuori di quest'acqua, altrimenti prenderete l'infezione pure li.

Dopo aver ammollato la ferita, vuotate l'acqua nella latrina immediatemente, mettendo le mani sotto l'orlo del recipiente. Fate che quest'acqua non tocchi nessun'altre parte del vostro corpo.

PER BENE VOSTRO, OSSERVATE QUESTI INSTRUZZIONI ACCURATAMENTE.

F-7603

INSTRUCTIONS FOR HOME TREATMENT

E. J. Brach & Sons,
Chicago

Purchase 10¢ worth of Boric Acid Crystals.

Do not remove the bandage from the wound.

Scour a basin until absolutely clean, then scald with hot water.

Boil one quart of water in this basin and let cool moderately.

Add to this water one tablespoon of Boric Acid Crystals.

Soak________________________for__________minutes every________hour.

Keep any other part of your body out of this water or you will get an infection there too.

After soaking your wound empty water into toilet immediately by placing your hands under the rim of the basin. Do not let this water touch any other part of your body

FOR YOUR OWN GOOD, FOLLOW THESE INSTRUCTIONS VERY CAREFULLY.

F-7603

"E. J. Brach + Sons, Chicago

HOW CAN I KEEP WELL?

Ten Helpful Hints on Cold Prevention

1. Avoid the direct spray from persons sneezing or coughing.
2. Keep away from fellow workers when you have a cold. Use paper tissues to cover sneezes and coughs, discarding after each use.
3. Wash hands often — always before partaking of any food. Refrain from shaking hands with your friends when you have a cold.
4. Eat nourishing food in your three meals a day.
5. Get at least eight hours of sleep. This amount is needed by all working people.
6. Avoid overexertion and unnecessary mixing in crowds, especially during epidemics.
7. Exercise moderately outdoors if your work keeps you indoors.
8. Wear proper clothing to keep you comfortably warm.
9. At the first sign of a cold take precautions and report to the nurse in First-Aid.
10. If you have a fever, aches and pains, and general weakness, CALL A PHYSICIAN and avoid the serious consequences of a cold.

Since colds are most infectious in the early stages, each worker should go to First-Aid for emergency treatment and advice.

LIBERTY MUTUAL INSURANCE COMPANY
Division of Industrial Medicine

LP 540

Here Are Some Important Answers

1. Pain, illness and fatigue are nature's warnings. Consult your doctor if you or any member of your family are thus warned.
2. Do not overtire your body after work by further heavy work or strenuous play.
3. Get enough sleep—your body will tell you if you need more. Your doctor will tell you why.
4. Use only medicines, gargles and sprays prescribed for you by your doctor.
5. Use a clean handkerchief every day. Never deposit excretions from the nose or throat on floors or sidewalks. Such actions by others endanger your health. You should avoid endangering the health of others.
6. Eat well balanced meals each day.
7. Always wash hands before eating.
8. Never eat food that has been uncovered and exposed to flies or dirt.
9. Eat only in clean places. Food served in a careless manner is nearly always subject to contamination and therefore not fit for human consumption.
10. Wash all fruits and vegetables thoroughly.
11. Never eat tainted or decayed food.
12. Store food in refrigerator at a temperature of 40°F. Use a refrigerator thermometer — don't guess.
13. Wash dishes in hot soapy water and rinse well with scalding water.
14. Wash and boil dishcloths and dish towels daily and hang outdoors to dry, in the sun when possible.
15. Never use a public drinking glass. Individual paper cups are better.
16. Boil drinking water if there is any question as to its source.
17. Wash hands thoroughly after using toilet.
18. Keep toilets and lavatories scrupulously clean.
19. Swat flies and screen windows.

E. J. Brach & Sons, Chicago

EMPLOYEE PROGRESS WORK SHEET

These statements describe how this person performs on his job. He may do the following things in a manner that is: SUPERIOR, GOOD, FAIR, or UNSATISFACTORY.

How To Use

Read each statement carefully! Place a ✓ mark under the heading that best describes his performance. Put an "X" mark in the "UNKNOWN" column after any statement you can't answer.

Use Reverse Side
For Comments or
Additional facts

	Unsatisfactory	Fair	Good	Superior	Unknown
Is quality minded					
Is a producer					
Handles tools and equipment with care					
Follows instructions					
Housekeeping					
Ability to learn new jobs					
Works with little supervision					
Is punctual and regular in attendance					
Initiative and judgment					
Accepts direction and correction					
Gets along with others					
Works safely					
Accepts special assignments					
Attitude					

After consideration of the above ratings, circle the word which best describes this employee.

UNSATISFACTORY FAIR GOOD SUPERIOR

E. J. BRACH & SONS
PHYSICAL REPORT TO EMPLOY

Date____________ Time____________

Employee__________________________

☐ Recommended for work

☐ NOT recommended for work

REMARKS:

F-7614 ______________________
Dispensary Attendant

Clock No. ....

Dept. .... Date ....

Reason for Absence

- ○ 1. Quit
- ○ 2. Voluntary Absence
- ○ 3. Illness
- ○ 4. Discipline Lay-off
- ○ 5. Refused Other Work
- ○ 6. Lay-off(lack of work)
- ○ 7. Accident at Work
- ○ 8. Accident Outside
- ○ 9.
- ○ 10.

Must be filled out in ink and signed by employee upon return to work. Foreman must countersign.

In order that my employer may correctly maintain my employment record for Unemployment Compensation purposes, I have punched the reason I was absent

on .... or

from .... to ....

....
Signature of Employee

Supplementary Remarks: ....

....

....

....

....

____
Signature of Interviewer

____
Signature of Foreman

E. J. BRACH & SONS ABSENCE REPORT FORM F-1128

E. J. BRACH & SONS
FIRST AID REPORT TO FOREMAN

Date

Clock No. Patient

PERMIT EMPLOYEE TO LEAVE WORK-

Time

Dispensary Attendant
F-7613

Notice to
FEMALE
Employees

In the best Interests of Safety, First Aid, and Appearance, It Is Necessary That These Rules and Regulations Be Read Carefully and Complied With.

E-J-Brach & Sons
WORLD'S LARGEST MAKERS OF POPULAR PRICED CANDIES
4600 TO 4656 W. KINZIE ST. CHICAGO

Notice to Employees

In the Best Interest of Safety, First Aid and Appearance, It Is Necessary That These Rules and Regulations Be Read Carefully and Complied With

IN CASE OF ACCIDENT:

1. Obtain a First Aid Pass from your department head or supervisor and report all injuries, no matter how slight, to the First Aid Nurse, immediately.

   INJURIES, no matter how slight, must be reported to person in charge of your work. Treatment will be given day or night.

   A serious condition or infection may result from a small bump, or scratch.

   In case of lay-off as a result of injury, report to nurse before returning to work.

2. When reporting to the First Aid and the Nurse is in the plant, you can have her located through the factory auto-call, by requesting any person in the Personnel Department, Employment Department, Watchman, Foreman or Supervisor, to do this for you.

3. WOUNDS TO BE RE-DRESSED DAILY.
   Mornings—from 5:00 A.M. to 10:00 A.M.
   Afternoons—from 2:30 P.M. to 5:00 P.M.

4. REPORT ALL ILLNESSES TO THE FIRST AID NURSE. (If you cannot come in to work, then telephone.)

5. If, as a result of INJURY received during working hours, an employee should engage medical services other than provided by our INSURANCE COMPANY, this will be at her own expense.

6. You are to be ready for work when leaving Locker Dressing Rooms before punching Time Clock.

7. INSPECTION: We conduct complete inspections of both Male and Female employees, before going to work, DAILY. This is done at the intersection of the women's and men's Locker Dressing Rooms. You will assist YOURSELF and the NURSE by completing your general appearance and being ready for this Inspection.

WHAT DO WE LOOK FOR?
WHY IS IT NECESSARY?

Condition of the hands. (You are to show the Nurse your hands.) She will note the following: Whether injured or soiled.

You general appearance. (Rings, Wrist Watches, Miscellaneous Jewelry, prohibited.)

No pins or other articles with pins, (unless provided with a safety clasp,) are to be worn.

Shoes that are firm and support the feet. Preferably a round toe shoe.

This type of inspection assists to avoid accidents and infections.

A Graduate Registered Nurse conducts this Inspection.

8. No employee is permitted in the working departments of the Plant unless in UNIFORM.

9. Before removing UNIFORM, you are to PUNCH Time Clock upon leaving work.

10. Regulation UNIFORM and CAP must be worn while at work. (This is a State Law.) These UNIFORMS are supplied and laundered at the expense of E. J. Brach & Sons and are not to be taken nor worn outside of the Factory. UNIFORMS, APRONS, CAPS, must be kept clean. Your Foreman or First Aid Nurse will authorize clean Uniform when necessary. The APRON must be changed DAILY.

11. HAIR NETS—Hair Nets are to be worn so as to cover the HAIR completely.

    CAPS—Caps to cover all the HAIR. (Except some hair on forehead may be exposed.)

HAIR—Hair must NOT be combed with the UNIFORM on.

HAIR-PINS—Hair Pins are strictly prohibited. Bobbie Pins, for the hair, if not sprung and are in good condition may be worn, if not numerous.

COSMETICS—Cosmetics are to be put on only when the UNIFORM IS OFF.

DRESSING—You are to dress and undress in the LOCKER ROOM only.

STRAIGHT PINS—Straight Pins are strictly prohibited and are to be excluded from all wearing apparel. Safety Pins, may be worn if concealed and are not to be exposed on the outer side of the Uniform.

GLOVES — Stockinette Sleeves — Adhesive Tape, will be supplied where it will prevent an injury.

HOSIERY—The wearing of FULL-LENGTH Hosiery is recommended.

SHOES—Oxford Style, a strongly constructed round toe Shoe of leather, with laces, that will support the feet and the body are to be worn. (No open work in the leather.) These may be black, white or brown.

JEWELRY—Jewelry and accessories are prohibited. (Except plain band wedding ring.) This applies to: Signet Rings, Rings with set stones, Wrist Watches, Brooches, Beads or Bead Necklaces, Drop Ear-Rings, etc.

Personal Cleanliness will be insisted upon at all times

Which includes:

12. CLEAN HANDS—Hands must be washed before leaving Wash Rooms.

    FINGER NAILS — Finger Nails must be clean, filed round and the cuticles pushed down.

    Finger Nail Polish Strictly Prohibited.

(Continued on Page 5)

Physical Examination

13. A complete Physical Examination is given each individual person before they are employed. You are requested to heed the Doctor's instructions in carrying out his orders. Before the Physical Examination is complete it will be necessary for you to return to the examining Doctor for arm-skin reading and possibly urine tests. It will save you time and avoid unnecessary examining complications if you return to the Doctor at the time he requests.

    When you do go to his office, tell him what you have returned for, this too, will save you time by not having to wait your turn in giving this information.

SAFETY FIRST

"Infection May Be Prevented, But Not Always Cured"

14. EYES—Your Eyes should be given every consideration.

    BE CAREFUL WITH THEM. If you need glasses, get them, if you have glasses, wear them. This will prevent many accidents, to your eyes, your body, and your fellow employees.

15. DO NOT LOSE IDENTIFICATION CARDS, such as, Social Security or Pay Stub. The Pay Stub must be presented to the Paymaster before envelopes will be released. If obtaining another employee's pay, a letter with their signature must accompany the Identification Pay Stub and be approved by the Payroll Department.

16. In case of CHANGE OF ADDRESS, the Employment Department and First Aid Department must be notified AT ONCE.

17. If unable to report for work at any time, notify the Company by telephone, otherwise your position may be filled by someone else.

18. Employees will not be called from work to answer telephone calls, except in case of an emergency. Any incoming calls will be received by the Personnel Department and will be given careful consideration.

19. IMPORTANT—Regular habits and self discipline are necessary for all employees.

    SMOKING—No SMOKING permitted, except in Locker Rooms, Wash Rooms, and Lunch Rooms. No smoking on any floor or in the Aisles of the factory, except in areas provided.

    PROFANITY—Profanity is objectionable to everyone and will not be tolerated.

20. **PACKAGES — We strongly recommend that you do not bring packages into the building as they will have to be checked and rewrapped by the linen room.**

    All Packages taken from the Plant must be wrapped by Linen Room Attendant and Pass Ticket attached, before being passed by the Watchman.

21. You are requested not to bring valuables such as Jewelry or Money into the Plant when you come to work. We cannot assume responsibility for Personal Property.

22. The Management, Superintendents, Personnel Department, Foremen, Supervisors and First Aid Nurses are responsible for the enforcement of these Rules.

    Keep in mind that it is necessary for a large organization to have uniform Rules and Regulations and that they have many advantages for YOU, as well as the Company. They assist greatly in avoiding accidents and preventing sickness, and in that way, are equally beneficial.

23. It is important that ALL INJURIES occurring at work or elsewhere, must be reported to E. J. Brach & Sons, FIRST AID NURSE.

E. J. BRACH & SONS

Form 7607 A2G4A-01

Notice to
MALE
Employees

In the best Interests of Safety, First Aid, and Appearance, It Is Necessary That These Rules and Regulations Be Read Carefully and Complied With.

E-J-Brach & Sons
WORLD'S LARGEST MAKERS OF POPULAR PRICED CANDIES
4600 TO 4656 W. KINZIE ST. CHICAGO

Notice to Employees

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Carefully and Complied With

IN CASE OF ACCIDENT:

1. Obtain a First Aid Pass from your department head or supervisor and report all injuries, no matter how slight, to the First Aid Nurse, immediately.

   INJURIES, no matter how slight, must be reported to person in charge of your work. Treatment will be given day or night.

   A serious condition or infection may result from a small bump, or scratch.

   In case of lay-off as a result of injury, report to nurse before returning to work.

2. When reporting to the First Aid and the Nurse is in the plant, you can have her located through the factory auto-call, by requesting any person in the Personnel Department, Employment Department, Watchman, Foreman or Supervisor, to do this for you.

3. WOUNDS TO BE RE-DRESSED DAILY. Mornings—from 5:00 A.M. to 10:00 A.M. Afternoons—from 2:30 P.M. to 5:00 P.M.

4. REPORT ALL ILLNESSES TO THE FIRST AID NURSE. (If you cannot come in to work, then telephone.)

5. If, as a result of INJURY received during working hours, an employee should engage medical services other than provided by our INSURANCE COMPANY, this will be at his own expense.

6. You are to be ready for work when leaving Locker Dressing Rooms before punching Time Clock.

7. INSPECTION: We conduct complete inspections of both Male and Female employees, before going to work, DAILY. This is done at the intersection of the women's and men's Locker Dressing Rooms. You will assist YOURSELF and the NURSE by completing your general appearance and being ready for this Inspection.

WHAT DO WE LOOK FOR?

WHY IS IT NECESSARY?

Condition of the hands. (You are to show the Nurse your hands.) She will note the following: Whether injured or soiled.

You general appearance. (Rings, Wrist Watches, Miscellaneous Jewelry, prohibited.)

No pins or other articles with pins, (unless provided with a safety clasp,) are to be worn.

Shoes that are firm and support the feet. Preferably a round toe shoe.

This type of inspection assists to avoid accidents and infections.

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11. CAPS, SHIRTS, TROUSERS, APRONS, must be kept clean. Your Foreman or First Aid Nurse will authorize clean UNIFORM when necessary. The APRON must be changed DAILY.

    GLOVES—Are to be worn when necessary, to prevent injury.

    ADHESIVE TAPE—Will be supplied if it will prevent injury.

    TOOLS—Are to be kept in Leather Pockets so as not to create an injury.

    GOGGLES—Are to be worn in any work that would cause injury to the eye, such as flying objects, filing metal, welding, ceiling work, etc.

    SHOES—Oxford Style, a strongly constructed round toe Shoe of leather, with laces, that will support the feet and the body are to be worn. (No open work in the leather.) These may be black, white or brown.

    JEWELRY—Jewelry and accessories are prohibited. This ruling applies to: Rings in any style, Tie Pins, Wrist Watches, etc.

Personal Cleanliness will be insisted upon at all times

Which includes:

12. CLEAN HANDS—Hands must be washed before leaving Wash Rooms.

    FINGER NAILS—Finger nails must be clean and cut short.

(*Continued on Page* 5)

Physical Examination

13. A complete Physical Examination is given each individual person before they are employed. You are requested to heed the Doctor's instructions in carrying out his orders. Before the Physical Examination is complete it will be necessary for you to return to the examining Doctor for arm-skin reading and possibly urine tests. It will save you time and avoid unnecessary examining complications if you return to the Doctor at the time he requests.

When you do go to his office, tell him what you have returned for, this too, will save you time by not having to wait your turn in giving this information.

SAFETY FIRST

"Infection May Be Prevented, But Not Always Cured"

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14. EYES—Your Eyes should be given every consideration.

BE CAREFUL WITH THEM. If you need glasses, get them, if you have glasses, wear them. This will prevent many accidents, to your eyes, your body, and your fellow employees.

15. DO NOT LOSE IDENTIFICATION CARDS, such as, Social Security or Pay Stub. The Pay Stub must be presented to the Paymaster before envelopes will be released. If obtaining another employee's pay, a letter with their signature must accompany the Identification Pay Stub and be approved by the Payroll Department.

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22. The Management, Superintendents, Personnel Department, Foremen, Supervisors and First Aid Nurses are responsible for the enforcement of these Rules.

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E. J. BRACH & SONS

Form 7607-A A2F4A-01 ⊕

E. J. Brach & Sons, Chicago

FIRST AID RECORD

NAME ____________________ CLOCK No. __________ ADDRESS ____________________

PHYSICAL EXAMINATION RECORD

DATE EMPLOYED ____________________

AGE ______ SEX ______ NATIONALITY ____________________ S.___ M.___ W.___ D.___ CHILDREN UNDER 16 YRS. ____________________ DATE EXAM. __________

GENERAL CONDITION AND NUTRITION GOOD __________ FAIR __________ POOR __________ HEIGHT __________ FEET __________ INCHES. WEIGHT, PRESENT __________ USUAL __________

VISION:
(NEAR ______ FAR ______)

WITHOUT GLASSES
R 20/ ___ L 20/ ___

WITH GLASSES
R 20/ ___ L 20/ ___

HEARING:
EARS ____________________
R. NORMAL __________ IMPAIRED __________
L. NORMAL __________ IMPAIRED __________
NOSE: ____________________

HEAD AND NECK:
TEETH ____________________
GUMS ____________________
TONSILS ____________________
THYROID ____________________

HEART: ____________________

LUNGS: ____________________

PULSE RATE, AT REST __________ AFTER EXERCISE __________ BLOOD PRESSURE: SYSTOLIC __________ DIASTOLIC __________ TEMPERATURE __________

FACE: __________ SKIN: __________ SPINE: __________

UPPER EXTREMITIES: ____________________ HANDS __________ NO. OF FINGERS __________

LOWER EXTREMITIES: ____________________ FEET __________ NO. OF TOES __________

ABDOMEN: ____________________ GLANDS __________

HERNIA: ______ (RIGHT) __________ (LEFT) __________ VARICOCELE __________ HEMORRHOIDS __________

REFLEXES: PUPILLARY __________ PATELLAR __________ ROMBERG TEST __________ URINE: ALBUMEN __________ SUGAR __________ SP. G. __________

OTHER FINDINGS: REMARKS, DEFORMITIES, ETC.: ____________________

GENERAL APPEARANCE: __________ PERSONAL HYGIENE __________ (CONDITION OF HANDS, NAILS, ETC.)

PAST HISTORY HAS THE APPLICANT BEEN SUBJECT TO ANY OF THE FOLLOW G?	EMPLOYEE SERVICE IN	OUT
TUBERCULOSIS		
ASTHMA		
ARTHRITIS		
OTITIS MEDIA		
EPILEPSY		
VENEREAL DISEASE		
TYPHOID		
VARICOSITIES		
HERNIA		
OPERATIONS		
VACCINATION ______ YEAR ______		

REMARKS, ETC. ____________________

INJURY: HEAD ______ BACK ______ EXTREM ______ OLD FRACTURES ______
AMPUTATIONS ______ DEFORMITIES ______ DESCRIBE AND GIVE % OF DISABILITY, IF ANY: ____________________

LIST OCCUPATIONAL DISEASES AND INJURIES COMPENSATED: ____________________

TESTS: KAHN __________ CHEST X-RAY __________

ACCEPTED: __________, REJECTED: __________, CLASSIFICATION: A.___ B.___ C.___ D.___

I certify to the best of my knowledge, my answers to the above questions are true and correctly recorded. Permission is hereby given the examining physician to convey any facts regarding my health and physical examination to E. J. BRACH & SONS.

SIGNATURE OF APPLICANT ____________________

____________________ M.D.
EXAMINED BY

____________________ R.N.
DISPENSARY NURSE

____
WITNESS

SUPPLEMENTAL PHYSICAL RECORD

E. J. Brach & Sons,
Chicago

NAME__________ CLOCK No.__________ ADDRESS__________

PHYSICAL RE-EXAMINATION RECORD

DATE EMPLOYED__________

AGE____ SEX____ NATIONALITY__________ S.__ M.__ W.__ D.__ CHILDREN UNDER 16 YRS.________ DATE EXAM.________

GENERAL CONDITION AND NUTRITION GOOD______ FAIR______ POOR______ HEIGHT ______ FEET ______ INCHES. WEIGHT, PRESENT______ USUAL______

VISION:

WITHOUT GLASSES { R 20/ L 20/

WITH GLASSES { R 20/ L 20/

HEARING:

R. NORMAL______ IMPAIRED______

L. NORMAL______ IMPAIRED______

EARS______

NOSE:______

HEAD AND NECK:

TEETH______

GUMS______

TONSILS______

THYROID______

HEART:__________ LUNGS:__________

PULSE RATE, AT REST______ AFTER EXERCISE______ BLOOD PRESSURE: SYSTOLIC______ DIASTOLIC______ TEMPERATURE______

FACE:______ SKIN:______ SPINE:______

UPPER EXTREMITIES:______ HANDS______ NO. OF FINGERS______

LOWER EXTREMITIES:______ FEET______ NO. OF TOES______

ABDOMEN:______ HEMORRHOIDS______ GLANDS______

HERNIA:______ VARICOCELE______

REFLEXES: PUPILLARY______ PATELLAR______ ROMBERG TEST______ URINE: ALBUMEN______ SUGAR______ SP. G.______

OTHER FINDINGS: REMARKS, DEFORMITIES, ETC:______

GENERAL APPEARANCE:______ PERSONAL HYGIENE______ (CONDITION OF HANDS, NAILS, ETC.)______

PAST HISTORY HAS THE APPLICANT BEEN SUBJECT TO ANY OF THE FOLLOWING?

TUBERCULOSIS______

ASTHMA______

ARTHRITIS______

OTITIS MEDIA______

EPILEPSY______

VENEREAL DISEASE______

TYPHOID______

VARICOSITIES______

HERNIA______

OPERATIONS______

VACCINATION______ YEAR______

OCCUPATIONAL HISTORY:

INJURY: HEAD______ BACK______ EXTREM______ OLD FRACTURES______

AMPUTATIONS______ DEFORMITIES______ DESCRIBE AND GIVE % OF DISABILITY, IF ANY:______

LIST OCCUPATIONAL DISEASES AND INJURIES COMPENSATED:______

TESTS: KAHN______ TUBERCULIN______

ACCEPTED:______, CLASSIFICATION: A.__ B.__ C.__ D.__

REJECTED:______, ______

I certify to the best of my knowledge, my answers to the above questions are true and correctly recorded. Permission is hereby given the examining physician to convey any facts regarding my health and physical examination to E. J. BRACH & SONS.

SIGNATURE OF APPLICANT______

______ M.D.
EXAMINED BY

______ R.N.
DISPENSARY NURSE

______
WITNESS

DRINKING WATER

Notice given to girls working on farms by our New England agent.

There is no reasonable doubt about the purity of the water supply on the farms where you are working. There is every reason to doubt the safety of drinking out of a common jug or pail used by all farm laborers by applying your mouth to the opening or rim, or by sucking it up like a horse. Even a cup used by everyone is liable to transmit colds or other diseases. This is so generally known and accepted that it does not need discussion. I have bought flat paper cups which you can carry in your pockets. You may purchase them 30 for 10¢.

I also suggest that each of you chip in 20¢ for the purchase of a one-gallon thermos jug which you can carry filled with clean fresh water to the place where you work. I shall be glad to get them for you; see that they are filled on starting.

More than that I cannot do. If you do not choose to take ordinary hygienic precautions, I cannot be responsible if any trouble results. I do feel, however, that you have a definite moral responsibility not to conform to known bad standards, but by your acceptance, as a matter of course, of decent hygienic habits, you can help to establish better standards for farm workers.

Fifty years ago many farmers kept their cows and dairies in a condition that would not be tolerated now in any state with an efficient board of health. They sneered at and made fun of those who insisted on real cleanliness in the dairies, hand washing and clean overalls for milkers, sterilizing of all utensils, etc. But the transmission of disease by dirty milk has become largely a thing of the past. You can help to establish standards of fresh clean drinking water for farm workers by your example, and if other workers are inclined to think yo u foolish, tell them it's considered in the Army to take unnecessary chances, and you are a part of the Land Army.

Please Return
Women's Bureau

EMPLOYEES' HEALTH SERVICE

Under Public Law 135, the 78th Congress passed necessary enabling legislation providing funds "....for the furnishing by the Public Health Service to and at the request of any Federal department or independent establishment, including Government-owned corporations, of coordinating and consultative services with respect to methods and standards for operating emergency health facilities in such department or establishment, including in-service training of such emergency health facility personnel, and for providing employees of such agencies (1) tuberculosis and psychiatric examinations and (2) health and nutrition instruction through lectures and demonstrations...."

In order to furnish the health services as set forth under the above legislation, the Employees' Health Service was established July 1, 1943, as a section within the U. S. Public Health Service Dispensary, 4th and D Streets, S.W. It is comprised of five Units: Mental Hygiene, Public Health Nursing, Tuberculosis Control, Health Education and Nutrition.

It will be noted that the purpose of the Employees' Health Service under the above enabling legislation is a two-fold consultative service:

(1). To furnish "coordinating and consultative services with respect to methods and standards for operating emergency health facilities in such departments or establishments." In this respect, the Employees' Health Service stands ready to assist any Federal department or agency in establishing a Health Unit for the purpose of carrying out an overall health program. Such a service should be of particular value, if and when the proposed legislation submitted by the Civil Service Commission is enacted enabling Federal departments or agencies to establish health programs. Anticipating the passage of such authorization, several departments and agencies have requested the Employees' Health Service to survey their needs, and offer recommendations relative to the establishing of Health Units to provide overall health programs.

(2). The second consultative service "....including inservice training of such emergency health facility personnel, and for providing employees of such agencies (1) tuberculosis and psychiatric examinations and (2) health and nutrition instruction through lectures and demonstrations...." enables the Employees' Health Service to:

(a). Provide the personnel of Health Units with inservice training. At present, 172 nurses in 110 Health Units or Health Rooms are taking "Inservice Classes for Nurses". These classes will cover a period of twenty-four weeks, at the end of which time each nurse will have had the opportunity of participating in six classes in Mental Hygiene, six in Public Health Nursing, six in Applied Nutrition, and six in Methods and Techniques in Adult Education. Discussion groups have been conducted by the Chief of the Mental Hygiene Unit with certain groups of Employee Counselors, relative to Mental Hygiene problems.

(b). Provide a department or agency consultative service on any health problem within the realm of Employees' Health Service. Examples of such are: Programs in Nutrition or particular phases of the problem, assistance with Nursing problems, the handling of Mental Hygiene cases, Health Education, employee environment relative to lighting, ventilation, etc., or X-raying of selected groups of employees for Tuberculosis Control, such as follow-up chest films on arrested cases.

(c). Provide consultative service within the realm of the Employees' Health Service for individual Federal employee patients referred from or through the Health Unit or Health Room of the department or agency. Examples of such service are: X-raying employees suspected of having tuberculosis, and if necessary, the furnishing of laboratory work to establish the diagnosis, examination of Mental Hygiene patients, assistance for individual employees with nutrition problems.

Max Milstein — Contracter for V. Maxwell Suits -
230 West 39th St.
New York City

Montgomery Ward Miss Barnet H. Higginson \ Fashion Div -
75 Varick St.
New York, N.Y.

Miss Va. Jewel
The Cotton-Textile Institute, Inc.
320 Broadway, New York City

Borrowed for March 11-12 Conference

Mr. W. A. Wilkinson - Miss Colley
Am. Optical Co.
1317 NY ave
DC

Welding and
Face shields

Ex. 2513

Vera Maxwell
230 W. 39th NYC -

Wrote to her

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

THE PREEMPLOYMENT PHYSICAL EXAMINATION OF WOMEN WAR WORKERS

In general, physical examination of women should follow the same line as that of men. It should be based on the job requirements of the industry and should serve as a placement guide specifically, not as a method of weeding out workers with physical impairments.

The examination should be used as a basis for advice to the applicant about remediable defects. It should be required that steps be taken to remedy these defects before employment. Examples include care of varicose veins, defective teeth, and correction of eye defects.

Since women are found to be more frequently anemic than men and often in a poorer state of nutrition, special attention should be given to these factors in examining women. It is suggested now by industrial physicians that these factors may be important in the special susceptibility of women to certain occupational poisons, e.g., lead and benzol.

Women between the ages of 15 and 25 have a high rate of tuberculosis. Crowded living conditions and food shortages make it especially important that careful chest examination be made of applicants both to protect fellow workers and to find early cases of tuberculosis.

Possibly 8 to 10 percent of women applicants will have some history of menstrual distress. Much illness and absenteeism from this cause can be avoided by prescribing recommended exercises and advising about the prevention of constipation at the time of the preemployment examination. These women should be assigned to work where they can sit part of the time and stand part of the time.

If women are to be placed on work of a heavy nature, they should be carefully selected for their muscular ability as well as good general health.

Outline of Procedure in Women's Bureau Accident Studies
(Prepared for Federal Accident Statisticians)
August 1938

STATEMENT AS TO PURPOSE

The Women's Bureau is created by law with the specific duty to investigate and report upon all matters pertaining to the welfare of women in industry, and to formulate standards and policies to improve their working condition. The reduction of injuries to employed women is a matter of great importance. Women's injuries constitute special problems differing from men's in causative factors as well as results and these problems had little recognition prior to the publication of the Women's Bureau studies of industrial injury.

A. Coverage.

1. Field—The industrial injuries of women as reported by those States having data by sex.

2. Degree of coverage—The Women's Bureau fixes no limitations; data are requested from each State accident authority so far as reported by sex; and for all industrial injuries. However, the coverage is limited by the States whose statistics are limited by requirements of State departments, lack of funds, etc.

B. Reporting requirements.

Reporting to the Bureau is through the medium of State Industrial Commissions whose cooperation is, of course, voluntary. The Bureau analysis is prepared covering two-year or three-year periods.

C. Type of "accident" reported.

1. Definition—As tabulated by State. Most report only lost time injuries, varying from one shift to ten days. Several report also on injuries involving no loss of time.

2. What is defined as a reportable casualty varies from State to State. All those covered are employees reported to State authorities on industrial accidents.

3. Disability classification.
    - Fatal
    - Permanent total
    - Permanent partial
    - Temporary

D. Accidents and casualties not required to be reported.

Published data of the Women's Bureau include traumatic, chronic, and disease disabilities as reported to the Bureau. The field covers damage to persons only, not to property.

E. Exposure data.

None are available that can be used in relation with injury data collected by the States. We do analyse data on general employment trends to point out the possible correlations of such employment trends with changes in accident frequency and severity.

F. Cause data used.

1. Of injury—(These are the only cause data available; Classification used.
    - Machinery
    - Falls of persons
    - Handling of objects
    - Stepping on or striking against objects
    - Hand tools
    - Explosions, electricity, heat
    - Falling objects
    - Vehicles
    - Harmful substances
    - Animals
    - Miscellaneous and indefinite

G. Nature and location.

1. Nature—classifications used
    - Amputation
    - Asphyxiation
    - Bruise, contusion, or abrasion
    - Burn or scald
    - Concussion
    - Crushing
    - Cut or laceration
    - Dislocation
    - Drowning
    - Electric shock
    - Foreign substance in eye
    - Fracture

Pressing
Gas fumes
Infection
Inflammation
Internal injury
Puncture
Sickness
Sprain or strain
Multiple injuries
Not otherwise classified

2. Location--classifications used.

Head
Face and neck
Trunk
Upper extremities
Lower extremities
Not otherwise classified

H. Statistics compiled.

Publications

The statistics on industrial injuries, by sex, are compiled and published with the effort to stimulate States to report by sex, and especially to give a background of information to aid in prevention.

1. Series published at regular intervals on industrial injuries.

Bul. No. 81 - Industrial Accidents to Men and Women.1930
Bul. No. 102 - Industrial Injuries to Women in 1928 and 1929 compared with Injuries to Men. 1933.
Bul. No. 129 - Industrial Injuries to Women in 1930 and 1931 compared with Injuries to Men. 1935.
Bul. No. 160 - Industrial Injuries to Women in 1932, 1933 and 1934 compared with Injuries to Men. 1938.

2. Series published at two or three year intervals on occupational diseases.

Bul. No. 114 - State Reporting of Occupational Disease.
Bul. No. 147 - Summary of State Reports of Occupational Disease with a Survey of Preventive Legislation, 1932 to 1934. 1936.

3. Special studies of industrial injury.

Bul. No. 60 - Industrial Accidents to Women in New Jersey, Ohio, and Wisconsin. 1927.
Bul. No. 151 - Injuries to Women in Personal Service Occupations in Ohio. 1937.

I. Statistical methods.

1. Technique--Methods of handling these statistics are limited by the form in which they are received.

2. Difficulties--Difficulties are those encountered as a result of the use of statistics compiled by a number of different agencies for varying purposes. They are principally due to lack of standardization in State reporting laws, and lack of uniformity in methods of tabulation.

J. Specific uses for which statistics are pointed.

Educational: The Women's Bureau is essentially an investigating and fact-finding body; it has no authority for actual administration of policies affecting the welfare of employed women, but is in continual cooperation with the State labor authorities charged with such responsibility, and is constantly endeavoring to assist them in their efforts to establish the best conditions for the safety and health of employed women. During the ten years the Women's Bureau has been carrying on its analyses of injuries to working women State authorities have shown an increasing desire to cooperate in the collection of these statistics.

B. L. S. 1076

U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS
WASHINGTON

June 15, 19~~3~~40

The attached is sent to you for the reason checked in the list below.

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REMARKS: R. 1210

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From Sven Kjaer

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U. S. DEPARTMENT OF LABOR - BUREAU OF LABOR STATISTICS - WASHINGTON

FEDERAL ACCIDENT STATISTICIANS

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2332 Labor Bldg.
Tel.- Labor 244

T. B. Maroney, Chairman
W. P. A.
304 Walker-Johnson Bldg.
Tel. 129

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Secretary
U.S. Dept. of Labor
6117 Labor Bldg.
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June 15, 1940

Notice of Meeting

The next meeting of the Federal Accident Statisticians will be held on Thursday, June 20, at 2 p. m. in room 3229 of the Labor Department.

At the last meeting several definitions were referred to the special committee for consideration of proper wording, to be sent to the members in advance of the meeting. A copy of these definitions is attached. Please look them over carefully and be prepared to discuss your ideas.

Sincerely yours,

Swen Kjaer, Secretary
Federal Accident Statisticians

ACCIDENT + injury DEFINITIONS

Federal Accident Statisticians Committee

"An accident is an event involving the contact of persons or objects with other persons or objects, or the exposure of persons or objects to conditions, or the movement of persons or objects, which results in unintentional personal injury (including death) or property damage."--Adopted October 24, 1939.

"Personal injury is any impairment of the body or of any bodily function."--Adopted October 24, 1939.

"Death is the result of an injury which involves the loss of life of the injured."--Adopted October 24, 1939.

"Industrial injury is an impairment of the body or of any bodily function arising out of or in the course of employment."--Adopted October 24, 1939.

"A disabling injury is an industrial injury which prevents the injured person from performing his regular work on the next calendar day, or on any other day subsequent to the date of injury."--Adopted October 24, 1939.

DISABILITY DEFINITIONS

Recommended by
→ Federal Accident Statisticians Subcommittee on Definitions

"Permanent Total Disability is the result of an injury, not causing death, which in and by itself and not in conjunction with any earlier injury, (a) completely and permanently incapacitates a person from gainful employment, or (b) involves the loss of or complete and permanent loss of use of any two of the following, not of the same limb: hand, arm, foot, leg, or eye."

accepted

"Permanent Partial Disability is the result of an injury not causing death, or permanent total disability which causes (a) the permanent impairment of any bodily function, or (b) the loss or permanent loss of use of any part of the body."

accepted

"Temporary Total Disability is the result of an injury not causing death, permanent total or permanent partial disability, which, ~~in the opinion of the doctor,~~ renders ~~disables~~ the injured unable to ~~from~~ work~~ing~~ on any part of the calendar day following the day of injury, or on a subsequent day."

"Temporary Partial Disability is the result of any injury, not causing death, permanent total, permanent partial, or temporary total disability, which disables the injured from continuing at his usual capacity ~~at the occupation for which employed~~ 1/ at his regular job on any calendar day subsequent to the date of injury."

~~1/ Possible substitute: "at which injured," instead of "for which employed."~~

June 14, 1940

Disability

~~INJURY~~ DEFINITIONS

Recommended by
Federal Accident Statisticians Subcommittee on Definitions
April 16, 1940

Back to Comm.

Permanent Total Disability is any injury other than death which completely and permanently incapacitates a person for any gainful occupation, or which involves the loss of or complete and permanent loss of use of any two of the following body parts, not of the same limb, suffered in one accident: hand, arm, foot, leg, or eye.

✓ Permanent Partial Disability is any injury other than death or permanent total disability ~~which permanently but only partially incapacitates a person for any gainful occupation, or~~ which ~~involves~~ results in the permanent impairment of any bodily function ~~through~~ or in the loss of or permanent loss of use of any part of the body.

✓ Temporary Total Disability is any injury other than death, permanent total or permanent partial disability which prevents the injured person from working for at least one full calendar day or shift subsequent to the date of injury.

Temporary Partial Disability is any injury other than death, permanent total disability, permanent partial disability, or temporary total disability which prevents the injured employee from continuing at his regular occupation at his usual capacity on any day or shift subsequent to the date of injury.

29 mimeo – Women's Wartime Occ. Hazards.

U. S. Department of Labor
Women's Bureau
Washington

March 11, 1943

WOMEN'S WARTIME OCCUPATIONAL HAZARDS

I. Industrial Accidents Among Women

1. The wartime trend in women's accidents

2. Special accident hazards to women
   - (a) Women as inexperienced workers
   - (b) Work-clothing problems
   - (c) Adaptation of machines, benches, seating arrangements to women replacing men
   - (d) Handling materials
     - Maximum weights for lifting and carrying
     - Engineering the heavy work out of the job
     - Training the new worker in lifting and handling

II. Industrial Health Problems of Women

1. Increased exposure to harmful substances

2. Special war problems of control
   - (a) Present validity of standards extablished under peacetime conditions

3. Increased exposure to harmful conditions

4. Special problems of certain war occupations

Women's Wartime Occupational Hazards

I. INDUSTRIAL ACCIDENTS AMONG WOMEN

1. The wartime trend in women's accidents is upward. American and British figures show great increases in injuries to women.
    - a. Working-machine accidents to women in Illinois increased 65 percent in 1941 over 1940.
    - b. Wisconsin injury reports show increases from January to December 1942 of 90 percent. Accident increases were greater than employment increases.
    - c. Michigan reports of injuries disabling at least 8 days showed an 82 percent increase July to December 1942 as compared to January to June 1942.
    - d. British figures show rises of 90 percent in women's accident rates in 1941 over 1938.

2. There is need for more complete statistics on which to base prevention programs.
    - a. Most States do not compile injury data separately for women.
    - b. No State has a basis of woman employment or woman hours of work on which to find frequency rates.

3. Women war workers have special accident problems.
    - a. The assimilation of great numbers of women never before employed and great numbers who have shifted to new war jobs means a large body of inexperienced workers needing safety education.
        - (1) Education should be on a nonproduction basis so the speed factor will not increase hazards of the job.
    - b. Women's ordinary street clothing is not safe for factory work.
        - (1) Headwear should be worn by the machine operator, enclosing all the hair, and should be of sufficient height and stiffness not to catch in revolving parts. Hard hats should be provided if falling objects are a problem, e. g., shipyard work.
        - (2) Work garments should meet safety and comfort requirements of the job. Such requirements include: (a) Freedom of movement; (b) Simplicity of design - no frills, loose cuffs, belts, collars, ties, etc., to catch on moving parts; (c) Special features where the job requires it (tapered legs for climbing, lattice pockets for powder work); (d) Well-fitted garments.
        - (3) Work shoes.
            - (a) All should be low-heeled and well-fitting.
            - (b) For workers handling materials weighing over ½ pound a safe-toe shoe should be supplied.
            - (c) High shoes should be provided for heavy welding.
        - (4) Jewelry has no place in the factory.
        - (5) The method of presenting and enforcing clothing rules is important.
            - (a) Employees should have voice in choice of garments.
            - (b) Employees should understand purpose of rules.
            - (c) Leaders among girls may be chosen to try out new safety garments.

c. Adaptation of working environment to women is necessary.
  (1) Women's average height is 5 inches less than that of men.
  (2) Women's reach is less than men's.
  (3) Women's fingers and hands are smaller.
  (4) Constant standing is more difficult and harmful for women than men. Women are more susceptible to varicose veins.
  (5) Adjustments may include wooden platforms, lowering benches, installing adjustable seats, changing position of machine controls, adding guards to machinery.

d. Handling material may have special hazards for women.
  (1) Women cannot lift so much as men.
    (a) Women average about half the muscular strength of men.
    (b) Experience shows that the average woman should not lift continuously over 25 pounds (10 lifts or more per hour). (Employment for heavy work should be on the basis of careful physical examination.)
    (c) Heavy lifting and carrying should be done by machine power.
    (d) Women should be taught safe methods of lifting.

II. INDUSTRIAL HEALTH PROBLEMS OF WOMEN

1. Studies show increased exposure of women to harmful substances such as lead and its compounds benzol and other solvents, mercury, radium, carbon monoxide, TNT, and to dermatitis producers such as tetryl, fulminate of mercury, cutting oils and compounds.
  a. Medical and engineering methods of control should be fully used to prevent occupational disease. Such methods may include periodic physical examination; exhaustion of dusts and fumes from the air, with periodic tests to keep concentration below safe limits; provision of personal protective equipment as required; provision of suitable washing and bathing facilities, and so forth.

2. War industry has brought increased exposures to harmful conditions,
  a. Women are working under conditions of extreme heat and extreme cold. Special attention should be given to (1) clothing for the work; (2) prevention of exhaustion by such means as special rest periods, special nourishment, special medical care.
  b. Women do much fine work, such as fine inspection, that may cause eyestrain. Special attention to lighting, the provision of magnifying glass to work under, preemployment eye examination, aid in preventing eyestrain.

3. The war has brought special problems of control. The following are examples:
  a. Restrictions on the use of tim have caused an increase in the amount of lead in solder. A higher temperature is required. No appreciable lead hazard was present under the old system; now girls soldering should have full protection against the respiration of lead fumes.

b. Subcontracting radium painting in small shops in many States is making difficult supervision and enforcement of safety rules for this dangerous occupation.

c. Dermatitis causes a high percentage of women's disabilities due to occupational exposure. Oil dermatitis is a particular problem with the increase in women on machine tools. The use of oil containing chlorine compounds has caused a particularly serious chloracne that may permanently disfigure and have serious systemic results as well.

   (1) Facilities for personal cleanliness are of prime inportance in prevention. Protective clothing and protective ointments may also be useful.

4. Wartime conditions make it questionable whether fume and dust concentrations in the air considered safe in peacetime continue to be safe limits.

   a. War factors lowering resistance to occupational disease include:
      (1) Increased hours
      (2) Short lunch periods
      (3) Pressure for production
      (4) Overcrowding
      (5) Makeshift washing facilities
      (6) Too little time for washing
      (7) Other fatigue factors, such as lack of correct seating, and so forth.

5. Expansion of women's employment in certain jobs raises special problems. For example

   a. X-ray operation: The increasing use of the X-ray industry to detect flaws makes it important that correct personal protective equipment be provided operators and that machines be sufficiently guarded.

   b. Radium dial painting: Specific and detailed standards have been established to prevent absorption of harmful rays by operators. These include special storage facilities, good housekeeping, glass shields, over work, individual exhausts, special washing facilities, careful selection and training of workers and periodic examination of workers.

   c. Welding:

      (1) Danger of burns makes essential special consideration of clothing and personal protection adapted to women.

      (2) Protection from fumes is essential. For example, welding or cutting metal painted with lead paint exposes the welder to lead. Coatings on rods may include silicon dioxide, aluminum oxide, titanium dioxide, calcium, magnesium and sodium oxide, iron, manganese, calcium fluoride, and carbon dioxide. Little information is available on the toxicity of these coatings when volatilized. Oxy-acetylene torches may generate nitrous fumes. Welding on stainless steel is particularly dangerous.

      (3) Widespread belief that exposure to arc welding may have harmful effects on the reproductive organs, even causing sterility, seems to be without basis. Unless exposure includes lead or other heavy metal no effect should be anticipated. The Women's Bureau has information on this subject from a number of industrial hygienists.

      (4) Adequately protected grinding occupations are no more harmful to women than to men.

      (5) Operation of pneumatic tools. Some special consideration should be given to the effect on women of constant jarring and terrific noise involved in operating pneumatic chippers, riveters, etc.

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Special #7

UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, SECRETARY
WOMEN'S BUREAU
MARY ANDERSON, DIRECTOR

◆

Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs

SPECIAL BULLETIN NO. 7 OF THE WOMEN'S BUREAU

United States
Government Printing Office
Washington : 1942

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - - - - Price 5 cents

HAZARDS TO WOMEN EMPLOYED IN WAR PLANTS ON ABRASIVE-WHEEL JOBS

I. Recommendations for the employment of women.
II. Brief description of operations.
III. Hazards and preventive methods.
  Dust hazards.
  Dust prevention.
  Oil dermatitis.
  Repetitive motion.
  Accident hazards.
IV. Sources of information.

★

I. Recommendations for the Employment of Women

If intelligent precautions are taken, grinding and polishing operations can be done safely. Protective methods are well developed and the problem becomes one of seeing that these are used. There need be no escape of dust into the workroom. Protective measures can greatly reduce the danger of dermatitis and of accident. There is no reason why women as well as men should not work on wheels properly installed, maintained, and inspected. The American Standards Association has published an acceptable safety code for the protection of workers in these operations. Several States have excellent codes for dust collection and safe operation of abrasive wheels.

Because women have special health and injury problems, the Women's Bureau urges that employers be required to show that they maintain healthful conditions of employment before they hire women. The following paragraphs summarize briefly the effects on the health of women as compared to men of employment in grinding, polishing, and buffing.

(1) Inhalation of dust from abrasive wheels is very serious for either men or women. Some industrial hygienists believe that the excessive tuberculosis rate among women 15 to 24 years of age indicates a special need for protection from dust[1] (1).

(2) Some authorities believe women are more likely than men to be affected by dermatitis on grinding where oil solutions are used.

(3) Long and loose hair as worn by women workers is a definite accident hazard.

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[1] References are to sources of information, last page.

(4) Other dangers, from cuts, abrasions, flying particles, broken wheels, and repetitive motion, are no more serious for women than for men. It should be kept in mind, however, that with any injury women have special problems. Their compensation is less than that paid for injury of similar severity to a man, because the wages of women are lower. Injury to the wage earner is a very serious matter to the household but it is even more serious when the wage earner is also homemaker.

II. Brief Description of Operations

Grinding, polishing, and buffing operations are similar in type. When a small amount of metal must be removed from an article to bring it to correct measurement, it usually is ground; when a smooth surface or special finish is desired, it is polished and perhaps buffed. Metal grinding usually is performed with emery wheels. Sometimes grinding is done by belts covered with emery or other exceedingly hard abrasive substance. Carborundum and corundum chiefly are used.

Grinding is accomplished by the revolution of the abrasive wheel against the object from which metal is to be ground. Danger to the worker from the metallic dust thrown off can be prevented by wet grinding, in which the cutting is done under a stream of water or oil to prevent overheating and to lessen the dust. However, the wet process cannot be used for all types of grinding. Where dry grinding is done, standards for dust exhaust systems as provided for in various State codes, such as that of Illinois (cited on p. 4), are satisfactory.

Polishing is done on emery wheels or on spindles covered with a composition of abrasive material, to give a smooth surface to castings. Buffing is a follow-up process to gloss the metal parts still further after they have been polished. Buffing usually is done with wheels of tightly compressed fabrics, sometimes infiltrated with fine abrasive powders.

III. Hazards and Preventive Methods

Dust Hazards.

In both grinding and polishing, dust is a chief health problem. The metallic dusts are very harmful, since they are extremely hard, crystalline, and very fine, and may be poisonous.

A Women's Bureau study as long ago as 1926 found that though dust was considerable in some plants where women were employed, in other plants effective exhaust systems and good cleaning methods kept the dust out of the atmosphere.

Investigation by the Women's Bureau of occupations suitable for women in the war production of 1941 and 1942 revealed that in metal plants with good dust-collection methods and adequate protection from injury the occupations of grinding, polishing, and buffing may be classed among the most desirable jobs for women.

In 1911 the Ohio Division of Occupational Diseases, under the direction of Dr. Emery R. Hayhurst, made a study of health hazards in Ohio. In metal grinding and in polishing and buffing operations an excessive tuberculosis death rate was found. The following conclusions were reached (2):

> Liability to industrial *poisoning* existed in 38 of the plants visited, and especially so in 21. This was due in about half of the instances to the presence of other processes; in the balance it was due to working upon poisonous metals and alloys, particularly those composed of lead, or rich in lead component. The various poisons mentioned to which polishers and buffers were found subjected were lead, potassium cyanid, nitric acid fumes, phenol, amyl acetate, benzine, alum, crude paraffin, and "metal dust," furnace gas fumes, brass fumes, plating fumes, and acid-dipping fumes.
>
> . . . .
>
> One point which particularly impressed our investigators was that where blower systems were installed they were often very inefficient at the time of inspection and were said to be so most of the time. There appears to be but one way of getting around this—to make it somebody's business in each such room to see that such systems are in working order and to provide for compensation for this purpose. A metal or wooden "chest-protector" prevents harmful pressure against the person. Especially should medical supervision be adopted for this class of workers, as they are at a process which appears to take about 20 or 25 years off their lives. (See also page 5, Repetitive Motion.)

In spite of the serious hazards in the industry, Dr. Hayhurst found at that early date that some plants were adequately guarding their employees.

Dust Prevention.

In all dry grinding, polishing, and buffing operations local exhaust ventilation is a necessity. Specifications for dust exhaust systems have been put in force in several States. In the Illinois rules relating to this problem, the following exhaust-system designs are required (3):

> All branch pipes shall enter the header pipe at an angle of 45° or less. All bends, turns or elbows used in exhaust pipes shall be made with a throat radius of two pipe diameters except greater or smaller throat radii may be used to clear obstructions.
>
> All branch pipes shall connect with a header pipe. The area of the header pipe at any point shall not be less than the combined areas of the branch pipes joining it between such point and the small end of the header. Such header pipes shall be connected to an exhaust fan to produce a minimum air velocity in the branch pipes of 4,500 feet per minute or such greater air velocity reasonably required to remove dusts, vapors, gases or fumes generated if same constitute a hazard to the health of employees. Where cradles are used for handling the parts to be ground, polished or buffed, or where swing grinders are used, and large partial enclosures to house the complete operation are required, the opening in such enclosures shall have a minimum average air velocity of 100 feet per minute and shall be connected to branch pipes of an exhaust system of such area as to produce a minimum air velocity of 2,000 feet per minute in the branch pipes.

Hoods must be so connected with exhaust systems that all dust will be drawn into them and none will reach the operator's breathing zone.

The size of suction pipes necessarily varies with the diameter of the grinding wheel. Excepting swing-frame and portable grinding machines, the American Standards code for safe operation of abrasive wheels requires these dimensions (4):

Diameter of wheel	*Minimum diameter of branch pipe (inches)*
6 inches or less	3
7 to 16 inches	4
17 to 24 inches	5
25 to 30 inches	6

Some modification of these dimensions is allowable in the case of narrow wheels used for light work where little dust is generated and a smaller pipe will remove it.

Testing of exhaust systems to check on the effective removal of dust is quite as important as correct installation. The Illinois regulations require tests using a Pitot tube (3):

> A Pitot tube shall be used to measure the velocity pressure of the air flow in the branch pipes and such measurements must be taken in the

center of a straight portion of the branch pipe near the hood at a point that is 10 pipe diameters away from an elbow or bend or as near this location as the branch pipe installation will permit and the velocity pressure shall not be less than 1.53 inches of water for 4,500 foot velocity per minute and 0.31 inches of water for 2,000 foot velocity per minute as indicated in a U-shaped tube.

All tests for air velocity shall be made with all branch pipes and hoods of the exhaust system fully open at the same time.

Oil Dermatitis.

Oil used in wet grinding may cause dermatitis, particularly of the hands, arms, and thighs. Some authorities say that women are especially susceptible to such infection because their skin is tender. The dermatitis is an acne-form eruption of the exposed skin, or a folliculitis involving the hair follicles, or eczematoid dermatitis. In the first two it is caused by mechanical plugging up of the pores, followed by infection. Bits of metal in the oil may wound the skin and become infected. The Women's Bureau is studying dermatitis among women.

The United States Public Health Service advises protective ointments, such as lanolin and castor oil, rubbed into the skin before work. This prevents contact of the oil with the skin, and workers wash off the ointment before leaving work, thus removing the irritant too. Clean work clothes, clean wiping cloths, and good washing facilities are important. (5) Dermatitis of the thighs is easily prevented by wearing impervious clothing that prevents the oil reaching the undergarments.

Repetitive Motion.

Faulty posture and constant pressure of the body against objects present health problems. Abrasive-wheel operation may be light and not fatiguing, but in many cases it is necessary to press the part to be ground heavily against the wheel or to use a special motion to turn the piece. In the Women's Bureau study in 1926, several women complained of fatigue of their wrists caused by constant repetition of a special motion required to bring the surface against the polishing wheel. One girl had her arm bandaged to relieve the swollen wrist.

Variation of occupation, provision of good-posture seats, and efficient motions in handling work help to prevent fatigue from repeated motion. Rest periods should be provided.

Accident Hazards.

On some operations there is danger of getting the hands cut or scraped on the wheel. In buffing or polishing small pieces it is difficult to protect the nails and finger tips. Finger guards should be used in such work.

More serious, though less frequent, is the possibility of loose hair catching on wheels operating at high speed. Suitable headwear, covering all the hair but standing up from the head so that machinery cannot catch in the cap and then in the hair, should be provided and its wearing enforced.

In the operation of grinding wheels at high speed there is the possibility of the wheel breaking and of pieces flying out, with injury to the worker. The best protection is a hood for the wheel, of good design and construction. Other important preventive methods include careful storage and correct mounting. The technical factors involved in such protection are covered in detail in the safety code for abrasive wheels approved by the American Standards Association. See (4).

Goggles are considered the best eye protection and should be provided for all employees on grinding wheels unless the danger of flying particles of metal is effectually removed.

IV. Sources of Information

(1) United States Department of Labor. Women's Bureau Bul. 114. State Reporting of Occupational Disease. 1934. p. 14.

(2) Hayhurst, E. R. Industrial Health Hazards and Occupational Disease in Ohio. Issued by Ohio State Board of Health. February 1915. p. 144.

(3) Illinois Department of Labor. Industrial Commission. Rules Relating to Removal of Dusts, Vapors, Fumes, or Gases from Grinding, Polishing, and Buffing Operations . . . effective July 15, 1938. pp. 11, 14.

(4) American Engineering Standards. Safety Code for the Use, Care, and Protection of Abrasive Wheels. Approved by the American Standards Association. New York. 1935. p. 20.

(5) Federal Security Agency. United States Public Health Service. Public Health Bul. 249. Louis Schwartz. Skin Hazards in American Industry, pt. III, 1939. p. 51.

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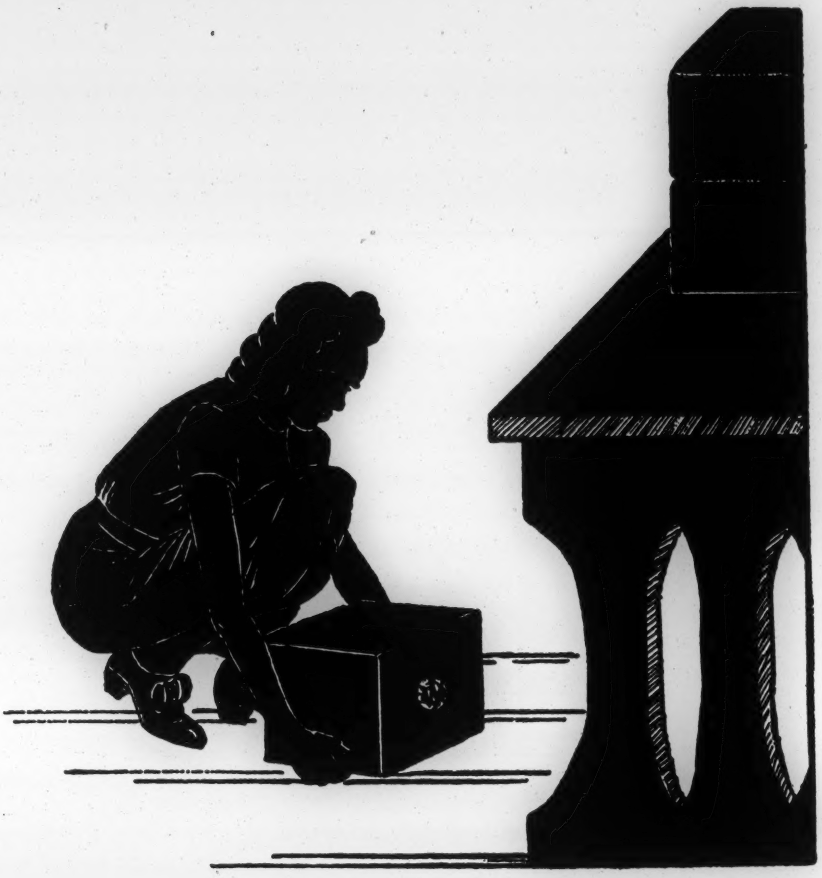
31
Special #2

LIFTING AND CARRYING WEIGHTS BY WOMEN IN INDUSTRY



U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

Special Bulletin No. 2
1941 (Revised 1946)

LIFTING AND CARRYING WEIGHTS BY WOMEN IN INDUSTRY

I. Guard against injury to physique in the lifting of heavy weights.
II. Analyze the elements in weight lifting to develop methods of saving energy.
III. Overcome the dangers involved in lifting heavy weights by using certain methods.
    1. Introduce lifting and conveying devices.
    2. Provide efficient conditions for work.
    3. Inform workers as to proper methods of lifting.
IV. Train workers to use the most economical methods of carrying weights.
V. Protect the health of workers in heavy industries by physical examinations.
VI. State regulation of weight lifting is more effective through the general authority granted regulatory bodies than through specific laws fixing maximum weights.

The selection of a woman for a job requiring constant lifting, carrying, pushing, or pulling should depend not only on her weight and height but on the amount of strength she has. An apparently sturdy woman may find such work on heavy materials far beyond her capacity, whereas a slight woman may have the strength to do it without injury to herself if she does it properly. The plant physician should decide on a woman's physical ability in each heavy job.

The distances that loads are to be carried also should be considered in determining their size; and not only how far they are to be carried, but how constantly, and whether up or down stairs, through crowded aisles, or over uneven floors or ground.

As with lifting and carrying, the safe load to be pushed in a wheelbarrow or a cart will vary with the conditions of work. For short periods at a stretch, over a smooth floor and on the level, a woman can push more than she can if the work is constant over a period of hours, if the ground is rough, or if she pushes up and down ramps or other elevations. It is important also that whoever loads the wheelbarrow or cart should pile the material carefully, so as to balance the load, to relieve the woman of the weight as much as possible, and to avert the danger of spills.

Many occupations in which women are employed involve the lifting and carrying of loads. The work of women in service and trade industries (such as waitresses), and in factory production, frequently brings exposure to the strain of heavy lifting. Even light manufacturing involves the lifting and carrying of materials during processes of manufacturing or packaging; and the heavier industries bring additional problems. A list of jobs on which women were found by the Women's Bureau to be working during World War I,[1] and which has been duplicated during the past few years, includes, for example:

Lathe operation on heavy work. Heaviest in munitions plants, where they cut shells weighing 19 to 100 pounds. (On heavy shells mechanical lifting aids were available.)

Operating automatic gear cutting or shaping machines to cut spur and bevel gears. Blanks from which gears were cut by women were very heavy.

Turning metal into rods, bars, wire, or sheets. Feeding and receiving strips through rolls. Much of the work entailed lifting of heavy ingots.

Core making. Heaviest core made successfully by hand by women in 26 firms studied weighed 45 pounds.

Loading shells. Lifting shell (weighing from approximately 20 pounds up), holding plug against revolving shaft, which grasped plug and unscrewed it.

Labor in petroleum refining. (369 women were found in 6 firms employed as laborers in various types of heavy work.)

Tire-making processes. These involved lifting tires weighing 14 pounds or more on and off spools. In some cases men were hired to do the lifting.

Unskilled manual labor. Much of this work involved lifting and pushing heavy materials. The maximum weight pushed by a woman was 750 pounds.

Loading and unloading.
Transporting material.
Shoveling sand and coal.
Piling boards in lumber mills.

In Great Britain still further types of heavy work were done by women during World War I. In a study of the physique of over 3,000 industrial women, they were found doing severe muscular work in the following occupations:[2]

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[1] See Women's Bureau Bull. No. 12, 1920, especially pp. 100, 106–107, 108, 124, 128, 129–130, 133. (Out of print but available in libraries.)

Chemical works—Navvy work: One woman shoveled 20 to 25 tons of crude borite a day, lifting it to a height of about 2½ feet.

Brick setting and drawing—Filling and emptying ovens: Each girl carried three or four bricks, weighing 26¾ pounds each, a distance of 70 to 80 yards.

Brick molding: Slammed clay into wooden molds, then placed molded brick to dry on steam-heated stone floor. Women wheeled barrows containing 4 to 4½ hundredweight of bricks.

Tin-plate industry—Opening, cold rolling, reckoning, pickling: Lifting was an essential part of each process. The average proportion of load to body weight was found to be 58 percent for young girls.

Sanitary-pipe manufacture: Carrying pipes of 24 to 50 pounds about 40 yards to be dried. Average weight lifted, 6.6 tons a day. Also, feeding pipe-making machines with wedges of clay. (The physique of girls in this industry was poor.)

Nuts and bolts: Press operators carried pans of nuts and bolts to their benches, the size of the load being left entirely to the worker. One woman carried as much as 93 percent of her body weight.

Pottery: Carrying of tiles, and baskets and bungs of biscuit ware. Ordinarily two women carried basket between them.

Paper: Carrying bundles of paper for sorting. Average load 57 percent of worker's body weight.

Aerated waters and beer bottling: Stacking crates to heights sometimes exceeding height of worker.

Woolen and worsted: Load of 180 to 190 pounds carried by two women.

I. Guard Against Injury to Physique in the Lifting of Heavy Weights

Much that may be said as to the proper methods of saving human energy in weight lifting applies to men as well as to women. Moreover, new applications of energy-saving lifting devices in industry are appearing constantly. However, there still are important physical factors that must be considered as applying particularly to women.

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[2] Great Britain. Industrial Fatigue Research Board, Report No. 44, The Physique of Women in Industry, 1927, pp. 20, 21, 118, 120, 121, 122, 125.

1. Limited strength of average woman precludes her employment in work that is excessively heavy.

It has been found that the strength of the average woman is a little more than half that of the average man. This has been substantiated again by recent reports, which continue to agree with quite early studies made in Great Britain and other European countries.

The International Labor Office accepts the results of Josephine Joteyko's researches in France. She found that tests gave the index of strength of women by the dynamometer as 570/1000 that of man; the index of resistance by the ergograph as 679/1000.[3] Research by the British Industrial Fatigue Research Board substantiates these findings.[4] Still earlier, in fact, more than 55 years ago, the Anthropological Institute of Great Britain and Ireland concluded that "the female differs from the male more conspicuously in strength than in any other particular." This conclusion was reached as a result of a study by a pioneer authority in this field, Sir Francis Galton, who made careful examination of almost 6,400 adults—4,726 men and 1,657 women.[5]

2. Heavy lifting especially affects women's physical structure.

Continual lifting of heavy loads results in deformities of bone structure that may have serious effects at childbirth. To quote from findings of the International Labor Office: [6]

> When women have habitually to carry heavy loads (e.g. in the country or mountainous districts), skeletal deformities are noted (of the vertebral column, lower limbs), alterations in the thoracic capacity and abdominal walls. Thus, for example, a broadening in the lumbar region of the spine in women who carry loads with crushing together of the vertebrae, bringing about diminution in height, deformity of the pelvic basin with harmful effects on the development of pregnancy. Occupational cramp of the lateral muscles of the neck, pains of the

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[3] Joteyko, Josephine, La Fatigue et la Respiration Elementaire du Muscle. Paris, 1896. Quoted in International Labor Office, Occupation and Health, Brochure No. 152, Women's Work, Geneva, 1929, p. 5.

[4] Great Britain. Industrial Fatigue Research Board, op. cit.

[5] Galton, Sir Francis. In Journal of the Anthropological Institute of Great Britain and Ireland, vol. XIV, February 1885, pp. 275, 278.

[6] International Labor Office, Occupation and Health, op. cit., p. 18.

brachial plexus, suboccipital nerves, movable kidneys, cardiac and thyroid hypertrophy, and so forth have been reported.

During pregnancy marked variations in certain physical factors should be considered in connection with weight lifting. Respiration, pulse rate, composition of the blood, and so forth, which even in the normal woman differ from those of man, show more marked variations during pregnancy. Pregnancy affects the work of the heart, increases the volume of the blood, the venous blood pressure and the heart rate and displaces the heart upward. There is noticeable diminution of the amplitude of the respiratory movements, and a diminution of muscular power.

Similarly, some authorities have found that lifting aggravates menstrual troubles. A Russian investigation showed menstrual troubles prevalent among 69.5 to 78 percent of the women who did heavy lifting and carrying, as against 26.5 to 39.2 percent among those in the occupations not requiring weight lifting. These findings were based on a study of 1,450 women employed in the peat, coal, and metallurgical industries. As a control, women in textile work and tramway conductors in Moscow were selected. The troubles referred to were most frequent for the younger groups—19 to 25 years. Inquiry showed the difficulties to be in direct proportion to the amount of occupational work.[7]

II. Analyze the Elements in Weight Lifting to Develop Methods of Saving Energy

The elements entering into weight lifting and carrying must be analyzed, and conditions and methods of work adapted to the worker, in order to promote efficiency in the employment of women in occupations of a heavy nature. To do this, scientific study should be given to the following factors, both separately and in combination:

1. Weights of units lifted.
2. Ratio of load to body weight.

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[7] Okunjeva, Steinbach, and Schtscheglowa, Moscow, 1927, quoted in International Labor Office, Occupation and Health, Brochure No. 152, Women's Work, Geneva, 1929, pp. 19–20; Moore and Barker, American Journal of Physiology, 1923, p. 405; Lee, Frederic S. The Human Machine and Industrial Efficiency, London, 1918, pp. 58 and 59.

3. Quantity lifted in a day.
4. Levels of lifting.
5. Compactness of load.
6. Distance and changes of level traversed in carrying load.
7. Interference of loads:
    - With normal gait.
    - With normal respiration.
    - With normal center of gravity.
    - With local movement, i. e., pressure on joints or bones or chafing of skin, and so forth.
8. Temperature and ventilation of workplace.
9. Method of lifting:
    - a. Wide stance results in unnecessary strain on groin.
    - b. Lifting with shoulders lower than hips results in unnecessary strain on back muscles.

III. Overcome the Dangers Involved in Lifting Heavy Weights by Using Certain Methods

The analysis in the preceding paragraphs points naturally to the means for the most efficient employment of women who must use heavy materials or carry loads in connection with their work.

1. Introduce lifting and conveying devices.

Mechanical devices for conveyance are now designed to meet almost every serious problem of weight lifting and carrying.

2. Provide efficient conditions for work.

The first step should be to plan the best possible arrangement of the work. Such arrangement should include [8] (1) Reorganization of work lay-out to eliminate unnecessary lifting from one level to another. Vertical lifting is most costly in energy. Much lifting women do in feeding machines can be eliminated by having material on a level with the machine; (2) where lifting is necessary, arranging the work so that the worker does not have to stack above her height; (3) reorganization of work lay-out to shorten distances where carrying is necessary; (4) temperature and ventilation standards are of particular importance, especially in heavy work where allowance should be made for loss of excess heat without undue chilling of body.

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[8] Weight Lifting by Industrial Workers. Home Office Safety Pamphlet No. 16, London, 1937, pp. 16, 17, 18, 19.

3. Inform workers as to proper methods of lifting.

First instruction to the new employee is not sufficient. It must be repeated often.

(1) Women in particular should be informed as to methods that will prevent undue abdominal strain:

To keep the feet close to the object.
To use a narrow stance, the feet approximately 8 to 12 inches apart.

(2) Young girls need very special supervision and training in proper methods of lifting and carrying. Studies show that young girls may suffer seriously from lifting because of the possibility of malformation in bone development.

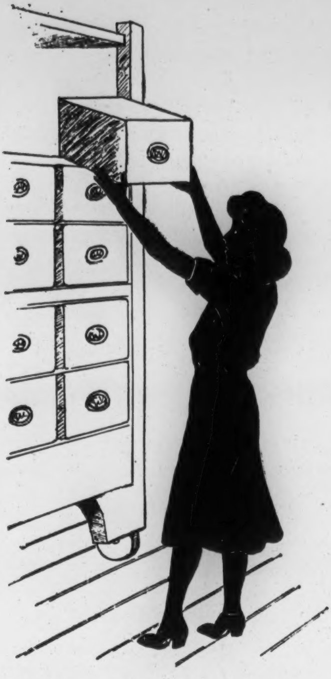

Figure 1.—Stacking above the worker's height strains the abdominal muscles.

Young girls and boys lack the judgment to determine the unit of weight to be lifted. For example, investigation showed that a girl suffering from a strained back was carrying about two and a half times the normal load, though she had to walk only about 30 feet, because she was working on a bonus system and wished to save time. Other girls were doing the same thing.

(3) Some methods of lifting and of carrying loads are much more efficient and less tiring than others, and workers should have instruction in these methods. Back muscles are protected from strain and exert a minimum of effort when the worker bends her knees, crouches by the object, then lifts by straightening the knees and standing erect.

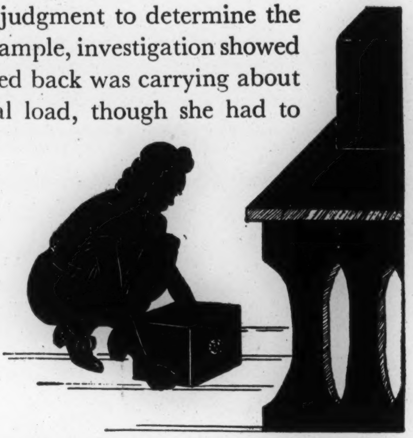

Figure 2.—With narrow stance and feet close to object worker bends her knees, putting brunt of strain on leg muscles rather than back. (By courtesy of National Safety Council, Safety Fashions for Women in Industry, p. 10.)

A frequent cause of back injury is improper lifting, that is, lifting with the back muscles rather than the leg muscles. A special survey by the New York Department of Labor found 72 cases of back injuries to women lifting heavy materials in industries of the State in 1930[9].

IV. Train Workers To Use the Most Economical Methods of Carrying Weights

The major considerations in the carriage of weights are to secure the greatest economy of effort consistent with efficient work and to assure freedom from strain in carrying that must be continued for a considerable period.

1. Of the common methods of carrying by women in industry the most economical and comfortable is carriage on the shoulder. This method leaves free the lower limbs and does not result in fixation of the chest.

2. Tray carrying, a common job requirement for women in factories as well as in domestic work and other service occupations, is satisfactory only for short distances and irregular work. Local fatigue of arms and wrists is marked in continued transportation by this method. There may also be unpleasant pressure on abdomen or thighs. The tray may interfere seriously with normal gait and alter bodily posture to the point of greatly increasing fatigue. Prolonged work with such loads may result in an habitual slouch. A load carried in front of a worker may interfere with vision of the floor surface and be a cause of falling. Heavy loads interfere with respiratory and circulatory functions. Where this type of carrying cannot be avoided, work periods should be appropriately short, or rest periods should be especially frequent.

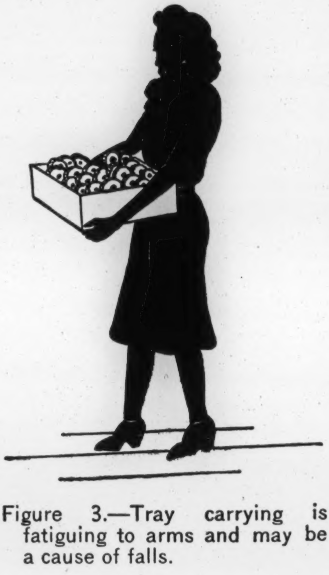

Figure 3.—Tray carrying is fatiguing to arms and may be a cause of falls.

3. Carrying bundles at the sides,

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[9] New York. Industrial Bulletin, April 1931, Compensated Back Injuries in New York State in 1930, pp. 222–224.

one in either hand, has the advantage of not disturbing body balance and not interfering with freedom of locomotion. However, marked local fatigue in hands and arms makes this an impractical method for *long continued* work. The drag on the shoulders interferes somewhat with respiration.

4. Carrying on the hip requires bending of the body to the side to compensate for the lateral load. It interferes with normal walking and to some extent with natural breathing. Workers find it particularly tiring because of fatigue to the arm and rubbing of the hip. For certain purposes it may be an advantage, since the load can be taken up from a table with ease and it leaves one arm free.

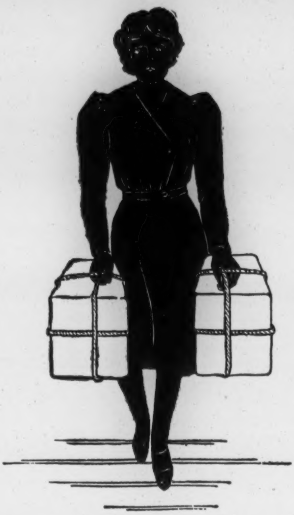

Figure 4.—Fatigue of hands and arms makes this an impractical method for continuous carrying.

Importance of rest periods in heavy occupations.

If awkward postures in lifting and carrying are unavoidable, they should be maintained only for short periods.

Rest periods have been used with good results in heavy industries. They are essential because of the effect of lifting and carrying on respiration—the need for making up oxygen deficits. The length of such rests should be related to the duration of the periods of muscular work and its severity.

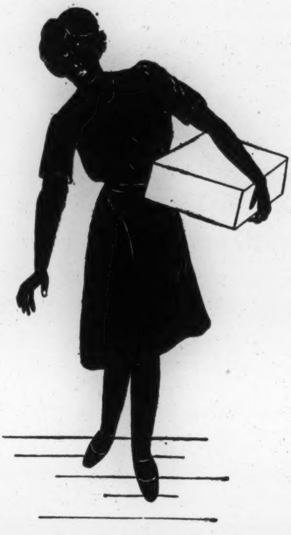

Figure 5.—Interference with normal respiration and gait results from carrying weights on the hip.

V. Protect the Health of Workers in Heavy Industries by Physical Examinations

During World War I good results in protecting the health of women workers were obtained in some companies by pre-employment physical examinations. Where the employment rights of the worker are adequately protected, such examinations are advisable in heavy industries employing women.

In these examinations it is especially important that proper safeguards be assured for the worker. It is suggested that a plan similar to the Wisconsin one be put into effect for that purpose. This plan, adopted unanimously by representatives of organized labor, calls for examinations to be made by a physician selected by the employer. In the event of grievance the examined employee makes written complaint to the State Industrial Commission, an investigation is made, and if the grievance is justified the employer is required to have all further examinations made by another physician.[10]

The job should be fitted to the capacities of the individual. When a prospective worker gives a history suggesting disorders such as tumors or complications of pregnancy, examination should indicate whether carrying heavy materials may be suitable work. In every case the medical history should include a definite statement about the interval between a previous pregnancy and employment involving heavy lifting.

Of course, there are many disorders not peculiar to women that should preclude employment in heavy work and should be found in examination prior to employment. Such examination should weed out cases of heart disease, hypertension, obesity, neurocirculatory asthenia, tuberculosis, hernia, and other conditions.

VI. State Regulation of Weight Lifting Is More Effective Through the General Authority Granted Regulatory Bodies Than Through Specific Laws Fixing Maximum Weights

Though it is frequently stated that the most economical load is about 35 percent of body weight, there are so many variations both above and below this figure in individual cases that scientific establishment of a maximum that would apply to all women is impossible. All the elements in weight lifting, such as compactness of load, levels of lifting, and so forth, must be considered as well as the physical characteristics of the individual who is to do the work.

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[10] Wisconsin Industrial Commission. Physical Examination of Industrial Workers. Madison, Wis., 1939.

In line with the method of protection through individual physical examination, State administrative bodies engaged in factory inspection should have authority to inspect and to advise and fix rules concerning conditions under which women work where the jobs involve heavy lifting.

The present State regulations pertaining to weight lifting serve chiefly to show that a need for protection of women has been recognized in nine States. The following list summarizes these regulations:

CALIFORNIA.—

1. Object weighing *50 pounds or over* must be equipped with pulleys, casters, or other contrivances so that it can be moved easily. (Any establishment employing women.)

2. Prohibits the carrying of an object weighing *10 pounds or over*, up or down a stairway that rises more than 5 feet from its base. (Any occupation, trade, or industry.)

3. Limits to *25 pounds* weight to be lifted or carried. (Any occupation, trade, or industry.) [This 25-pound limitation in practice superseded the 50-pound maximum fixed by statute.]

Exceptions permitted during war period, upon investigation.

MASSACHUSETTS.—

1. Receptacle weighing with its contents *75 pounds or over* may not be moved unless provided with pulleys or casters. (Manufacturing and mechanical.)

2. Prohibits lifting of cores the total weight of which *exceeds 25 pounds*, unless assisted by mechanical appliances that limit physcial effort to 25 pounds. (Core rooms.)

Exceptions permitted during war period, upon investigation.

MICHIGAN.—

Prohibits lifting of *more than 35 pounds* or carrying of *more than 20 pounds* when ascending stairs. Overhead lifting or stacking forbidden. (Any occupation.)

MINNESOTA.—

Prohibits handling of cores the total weight of which *exceeds 25 pounds*. (Core rooms.)

NEW YORK.—

Prohibits handling of cores when the combined weight of core, core-box and plate *exceeds 25 pounds*. (Core rooms.)

Exceptions permitted during war period, upon investigation.

OHIO.—

Prohibits employment requiring frequent or repeated lifting of weights *in excess of 25 pounds.* (Any occupation.)

During war period *35 pounds* permitted.

OREGON.—

Limits to *25 pounds* weight to be lifted and to *15 pounds* any article or receptacle carried for more than 10 feet. (Any occupation, trade, or industry.)

Order rescinded for duration of the war emergency.

UTAH.—

Prohibits lifting of "burdens" in *excess of 30 pounds* and carrying of "burdens" in *excess of 15 pounds.* (Any establishment.)

WASHINGTON.—

Prohibits lifting an excessive burden. (Canning; fruit and vegetable packing; manufacturing or other mercantile establishments. The order last-named adds "or carrying" to the prohibition.)

U. S. GOVERNMENT PRINTING OFFICE: 1946

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price 5 cents

32 The Work of Women on Pneumatic Tools

32

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

(March 1944)

THE WORK OF WOMEN ON PNEUMATIC TOOLS

The Employment of Women

Reports from various parts of the country show women employed in increasing numbers on a variety of pneumatic tools -- chipping hammers, air grinders, light rivet guns, weld-cleaning guns, pneumatic hammers, pneumatic drills, scaling guns, and sanders. These vary in weight from very light, small tools to tools weighing up to 18 lbs. or more. A number of shipyards still exclude women from any operation of pneumatic tools on the basis that this is not desirable work for women.

Recommended Conditions for the Employment of Women

The problem of safeguards for the woman operator's health was brought to the attention of a number of industrial hygienists. Their recommendations will be useful to employers who now have or are contemplating using women on these jobs: 1/

1. Women with the following characteristics are best suited for work of this kind:

    a. Above average in stature and muscular development.

    b. The phlegmatic, rather than the nervous, type.

    c. Having a history of normal menstrual periods.

1/ Those consulted include Dr. Alice Hamilton, Medical Advisor to the U. S. Department of Labor; Dr. Leonard Greenburg, Executive Director, N. Y. Division of Industrial Hygiene; Dr. M. H. Kronenberg, Chief, Illinois Division of Industrial Hygiene; Dr. Philip Drinker, Chief Health Consultant, U. S. Maritime Commission; and the Council on Industrial Health, American Medical Association.

2. Women with a history or clinical diagnosis of pelvic disorder, especially pelvic congestion, should not use vibratory equipment, even on the rotary type.

3. Pneumatic apparatus should not be used by pregnant women, by women who have had repeated pregnancies or abdominal operations, or by women with unusually large breasts.

4. Adjustment should be made in size and weight of tools for use by women. Women should not use heavy pneumatic equipment.

5. A sitting posture is preferable over an upright position.

6. If standing is necessary, rest periods in the prone or knee-chest position are recommended.

7. On periodic examination, women showing vasomotor disturbances, nervous or arthritic changes, should be transferred to other work.

8. Consideration should be given to change of job from time to time.

9. Counterbalancing, suspending, or propping tools should be done wherever possible to relieve operator of weight and vibration.

10. Women should not brace tools such as rivet guns against the chest. It is believed that following such practice might aggravate a tendency to develop cancer of the breast.

11. If the work involves production of silica-containing dusts, techniques for completely controlling them should be employed. This holds, of course, for all workers, men and women.

Pathology Resulting from Pneumatic-Tool Operation

A brief resumé of possible effects of using pneumatic tools will indicate the reasons for careful protection of operators. The International Labour Office made a detailed survey in 1936. The following paragraphs are based on this material, much of which relates to workers in such heavy industries as stone quarrying and mining. 2/

2/ International Labour Office, Supplement to Occupations and Health Section on Pneumatic Tools. Geneva, 1938.

Pathological conditions resulting from the use of pneumatic tools are chiefly vascular disturbances and injuries to the joints. Also of importance are the effects of noise on hearing and the effects of dust if it is produced by the operation. The effects of noise and vibration on the nervous system are less well known but may be serious.

The common vascular disturbance is a local anemia of the hand supporting the tool. In a right-handed person, the left hand is affected. Generally only the fingers or finger tips are affected, becoming stiff and awkward and unfit for work. This condition disappears after a period of rest. At the end of an attack, the fingers suffer from a burning sensation. The condition, known as "dead fingers," is attributed to the shock and vibration of the pneumatic tool acting on the blood vessels and on the nerve trunks. The way the tool is held is important, since a rigid position of the fingers has been found a principal cause of this type of injury. Such disturbances are accelerated by cold. They are most likely to affect workers who have not yet acquired skill in handling the tools.

Injuries to the joints are less common but tend to be much more serious, sometimes being permanent in character. Injuries described include necrosis, arthritis, and bone cysts.

The intensity of the symptoms in any particular case depends upon (1) the manner in which the tool is held, (2) the weight of the tool, (3) the nature of the work (intermittent or continuous, lasting during the whole work period or only part of it), (4) hardness of material worked, and (5) the [illegible] of the individual. Indications are that individuals vary in susceptibility. Some may be affected after a few months while others can work for years without such symptoms.

Joint injuries most frequently occurring are those to the elbow, especially of the arm holding the tool. It is believed that this preponderance arises from the fact that repeated shocks are directly transmitted to the elbow from the tool. When the pneumatic tool is held in an unnatural position, other locations of injury are found. Support of the tool on the thigh has been known to result in serious arthritis deformans of the hip.

Prevention of Pathological Symptoms

The operator should use pneumatic tools only for short periods of time. Rest intervals are important.

Tools of small caliber which do not give rise to strong percussion are recommended. The escape of air should be provided for in front of the tool and not by the side of it; the air pressure should be as low as possible. Attempts should be made to supply supports for the tools, such as a counterbalance arranged for a pneumatic hammer.

It is essential that the worker be taught the best method of holding and maintaining the tool in position.

Physical examination prior to employment should exclude from such work those with symptoms of arthritis. Annual examination should include X-ray, particularly of the elbow, to detect changes in bony structure.

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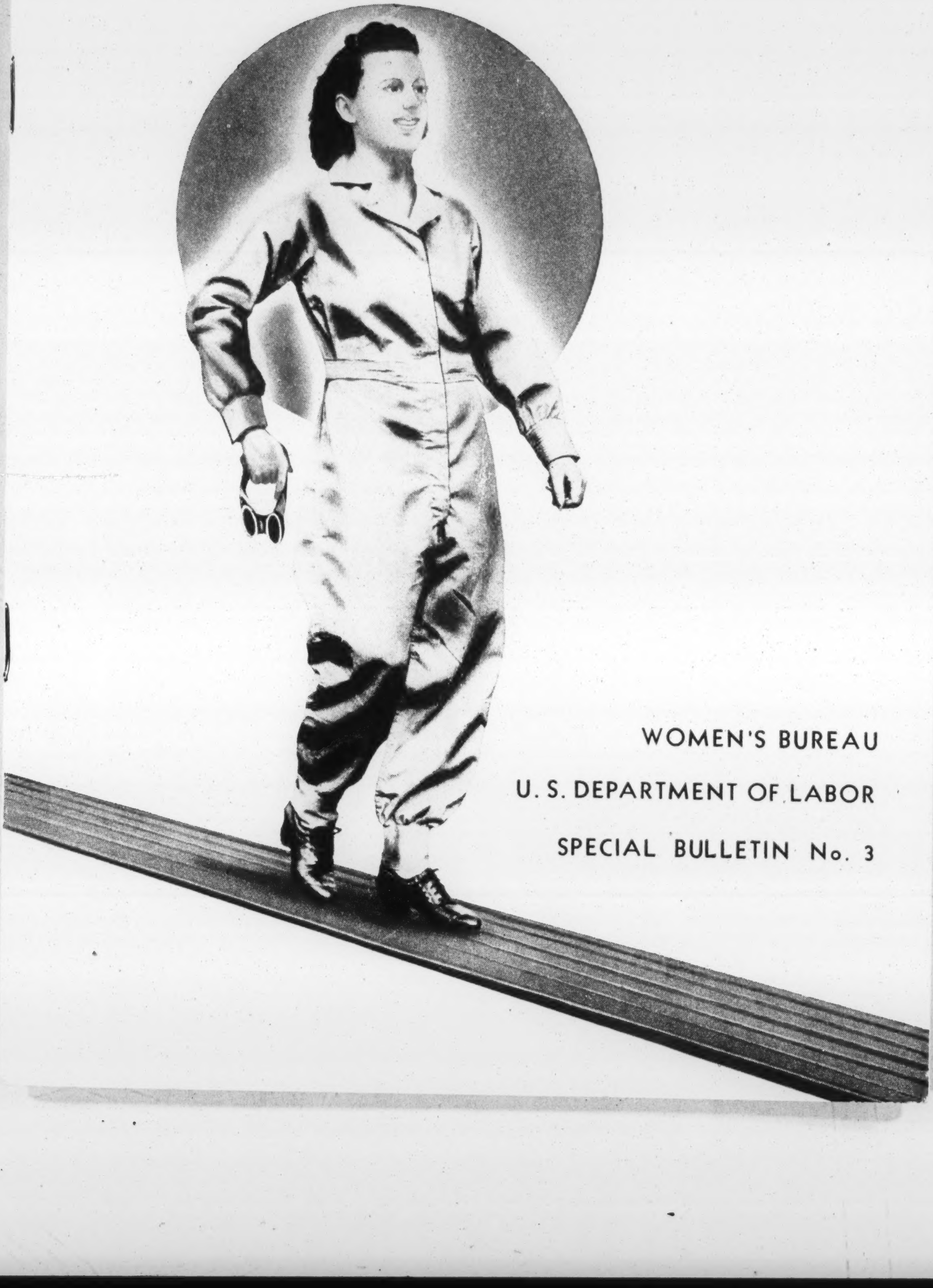
33 Special #3

SAFETY CLOTHING FOR WOMEN IN INDUSTRY



WOMEN'S BUREAU
U. S. DEPARTMENT OF LABOR
SPECIAL BULLETIN No. 3

UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU
MARY ANDERSON, DIRECTOR

◆

Safety Clothing for Women in Industry

SPECIAL BULLETIN NO. 3 OF THE WOMEN'S BUREAU

United States
Government Printing Office
Washington : 1941

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - Price 10 cents

Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, May 23, 1941.

MADAM: I have the honor to transmit herewith a report on safety clothing for women workers, constituting the third in the series of special bulletins for the employment of women in the defense program.

The research and the writing of this report are the work of Margaret T. Mettert of the Bureau's Research Division.

Respectfully submitted.

MARY ANDERSON, *Director*.

Hon. FRANCES PERKINS,
Secretary of Labor.

Courtesy American Mutual Liability Insurance Co.

SAFETY CLOTHING FOR WOMEN IN INDUSTRY

•

The well-dressed woman in industry is a safe worker.
Clothing suitable to the job helps to avoid accidents.
Consider your feet first.
Wear your goggles; you can't replace an eye.
Wear a cap around moving machinery.
Work dress must suit the job to be safe.
Hand coverings can prevent skin infection and other injury.
Jewelry has no place in the factory.
Jobs with special dangers require special kinds of work clothing.

★

The Well-Dressed Woman in Industry is a Safe Worker

Safety clothing is designed for its attractiveness as well as its utility. It has become fashionable to dress and act so that accidents cannot happen. The girl who was afraid to carry a mirror lest she bring bad luck by breaking it has become the girl who knows that accidents have definite causes that can be avoided.

Clothing Suitable to the Job Helps to Avoid Accidents

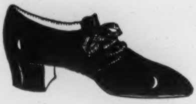
Safety conventions have so far recognized the importance of safe clothing that they have included on their programs "fashion parades" (see frontispiece) of clothes designed especially for industrial women. Designers have in mind first safety, then convenience, wearability, comfort, cleanliness, and coolness. Attractiveness is given due consideration.

In selecting the material for uniforms it should be borne in mind that lightly starched fabrics are said to be more resistant to fire than are fabrics without starch, and that cellulose fabrics are more inflammable than cotton.

Safety clothing of various types has saved many thousands of workers from permanent crippling, disfigurement, or blindness, and many more from time lost from work and weeks of pain and illness.

Consider Your Feet First

Much fatigue and nervousness can be laid to badly fitting shoes. If you suffer from chronic fatigue or pain in your feet or in the muscles of your legs, ask the plant physician or nurse to advise you about the right kind of shoes to wear.



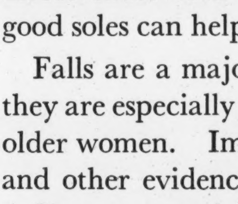
The correct shoe is long enough to place the ball of the foot in the tread of the shoe. The shoe allows for the natural spread of the toes, and fits snugly around the heel and instep. The heel is medium or low. The foot should always be measured with the standing weight placed on the measuring rule. The width should be fitted as carefully as the length. If deformities exist, exercise and mechanical devices will help.

High or run-down heels and thin or worn soles can be the direct cause of a fall. Well-fitting shoes with low heels and good soles can help to maintain footing on wet or slippery floors.

Falls are a major cause of women's injuries in industry; and they are especially serious, and result in much loss of time, among older women. Important causes of falls are wet, slippery floors and other evidences of poor factory housekeeping.

Some occupations require the wearing of safety shoes. Usually this is necessary if there is any danger of dropping heavy material. They can be as comfortable to wear and as attractive in appearance as an ordinary shoe. Such shoes with reinforced vamps have saved the loss of many toes. Several nationally known firms make them in all sizes for both men and women.

A specially designed foot protector for girls working in an optical-glass department is shown in figure 1. Made of chrome leather, it has a piece of aluminum curved to fit the top of the foot. This is protection to the instep and top of the foot against falling glass or other falling objects. Where workers handle acids, or where conditions of great heat or moisture exist, wooden-soled shoes have been designed.



Courtesy Pittsburgh Plate Glass Co.

Fig. 1.—Foot protector for girls in glass manufacture.

Women who work where explosives are manufactured or handled must wear shoes with sewed or wooden-pegged soles and heels with copper nails.

Wear Your Goggles—You Can't Replace an Eye

Wear an approved safety goggle in all work even remotely hazardous to your eyes. Accidental eye losses cost industry about 50 million dollars a year. They cost each worker who loses an eye his most precious possession, his sight. In New York alone almost 2,000 workers a year suffer eye injuries severe enough to make them eligible for compensation benefits. The most frequent cause is flying bodies. Other causes are tools or machine parts and splashing liquids. No one can tell when or how an eye accident will happen, and precautions should be taken.

Goggles are made in lightweight comfortable frames to wear by themselves or to fit over prescription glasses. There was a time when goggles were crude because a glass had not been produced that could stand heavy blows. Now glass can be so tempered that it will not shatter from any blow.

One company mounts on a bulletin board each pair of broken goggles and the object that broke them. Most of them come from men and women on jobs where the operation does not seem dangerous to the eyes. At least one large manufacturing concern requires goggles on every job, and visitors must put them on before entering the plant. This company saved itself $116,000 in 2 years by this requirement. More important, it saved at least 100 eyes in a period of 10 years.

Among the jobs where goggles should be used are upholstering and sewing-machine and grinding operations. Goggles have saved more than one eye from broken needles in sewing occupations.

Wear a Cap Around Moving Machinery

In a Government arsenal employing many women the statement was made recently in answer to a Women's Bureau inquiry that a woman's hair is the greatest hazard in her employment on machinery. It is possible for the electrical attraction in moving machinery to draw free hair into the machine (as a brush draws the hair after brushing), with very terrible results. For this reason a net should be worn or the hair should be cut short.

After years of experiment a company employing many women at work with revolving machines, and some in dusty operations, has decided on a uniform head covering, attractive in appearance as well as efficient in protection.

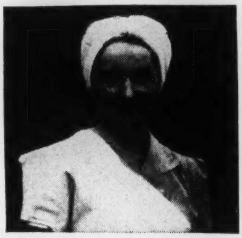
Two problems are present—confining the loose hair and preventing the possibility of revolving machinery catching in the hat and then in the hair. The distinctive features of the cap decided on are its height (the top does not touch the girl's hair) and its stiffness (it will not catch in revolving machinery). The head size is not small, so the hat would be thrown off if a girl did strike a piece of machinery. One girl, after wearing it at her machine operation for several days, remarked that she never before had realized how close she was working to her machine. The touch of the cap warned her she was too close.

Wearing a net to cover all the hair and hold it close to the head may be necessary where a girl has a lot of hair and the hat does not entirely cover it.

In this company the management arrived at the best solution to its hat problem by cooperating with the girl at the machine on questions of design, material, and comfort. Suggestions for such a uniform headdress can be given by the workers after the problem is outlined to them.

After careful consideration, the National Youth Administration has adopted a cap for its girl employees in factory work. This cap is visored to shade the eyes, is full so that all the hair may be covered. It is light, comfortable to wear, and washable.

In jobs where dust of any kind is present, and they are many, a well-fitting cap of closely woven, easily laundered material adds to comfort and health. The head covering in figure 2, designed to protect the hair and scalp from soda bicarbonate used in certain operations, is made of white batiste in the shape of a triangle and hemmed on all edges. Wrapped around the head and tied in front, it furnishes complete protection.



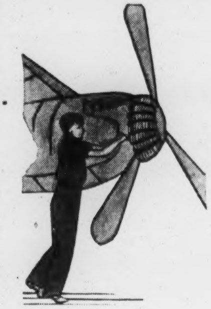
Courtesy Pittsburgh Plate Glass Co.

Fig. 2.—Head scarf for protection against harmful dusts.

Work Dress Must Suit the Job To Be Safe

The time has passed when clothes selected for the Easter parade may eventually become work clothes, no matter how unsuitable. Tight-fitting garments cause strain that increases fatigue. Loose, full dress around moving machinery invites serious injury.

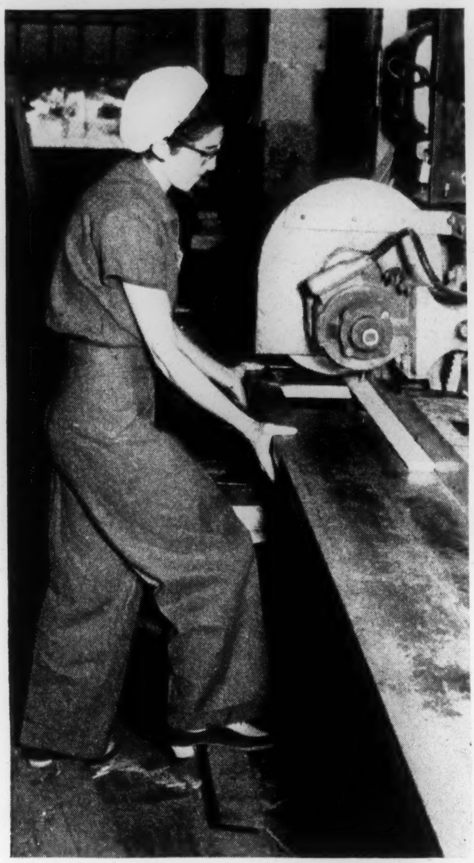
The girl working in airplane repair should wear slacks and blouse with short cuffless sleeves, or short-sleeved coveralls, to give freedom of movement without danger of catching on protruding equipment.



A similar uniform is necessary for the woman working near any moving machinery. It may be slacks and blouse, coveralls, or one of the various types of knicker suits that have been designed. The important things to remember when dressing for work at or near moving machinery are no loose sleeves, no full skirts, no ties or frills to catch in moving parts. (See frontispiece.) Both slacks and sleeves should be made without cuffs. Long sleeves rolled up are even more to be shunned than cuffs; the loose roll caught in a machine is most resistant to tearing and a serious arm injury may result. Pockets are to be considered, too, and no outside pocket at all is the safest rule. If an outside pocket is necessary, the Bureau of Home Economics advises a flat-seamed pocket or flat hip pocket.

On bench assembly work and other factory work without special hazards, either a simple well-fitting short-sleeved dress or slacks and blouse like that in figure 3 are appropriate. Freedom of movement spells comfort and efficiency in any work. Pleated backs in blouses and well-cut garments contribute to freedom.

A special dress for work is necessary, too, where there is dust or other soiling agent. Protecting the street clothes of men and women working with chlorinated naphthalene in the manufacture of insulated wires and electrical condensers was found essential to prevent cases of serious skin eruptions to young children and other members of the workers' families. Uniforms highly starched prevented absorption of the poison. In case of any poisonous dusts, exposure time is doubled by carrying the poison around on street clothes.



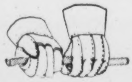
Courtesy National Safety Council.

Fig. 3.—Well-cut slacks and blouse spell comfort and safety while working near machinery.

With some materials skin contact is known to be a more important cause of poisoning than respiration or digestive contact. Street clothes must never be contaminated by such materials.

For the comfort of women who must work in cold places a ski type of trousers has been devised of warm material, fitting well about the ankles and topped by a closely knitted sweater.

Hand Coverings Can Prevent Skin Infection and Other Injury



Work gloves must be chosen for the job in which they are to be used. They must be comfortable and durable, as well as protective. Gloves are more than a decorative accessory for the woman in industrial work. Protection of the fingers and hands can go a long way in cutting down the number of injuries to women. Hands and fingers are used in practically every operation connected with earning a living. Even a slight accident to the fingers can completely disable a worker for the occupation that requires nimble fingers and accurate handling of small parts. According to some State reports, approximately half of all occupational injuries to women affect hands and fingers. Gloves can furnish adequate protection in many cases.

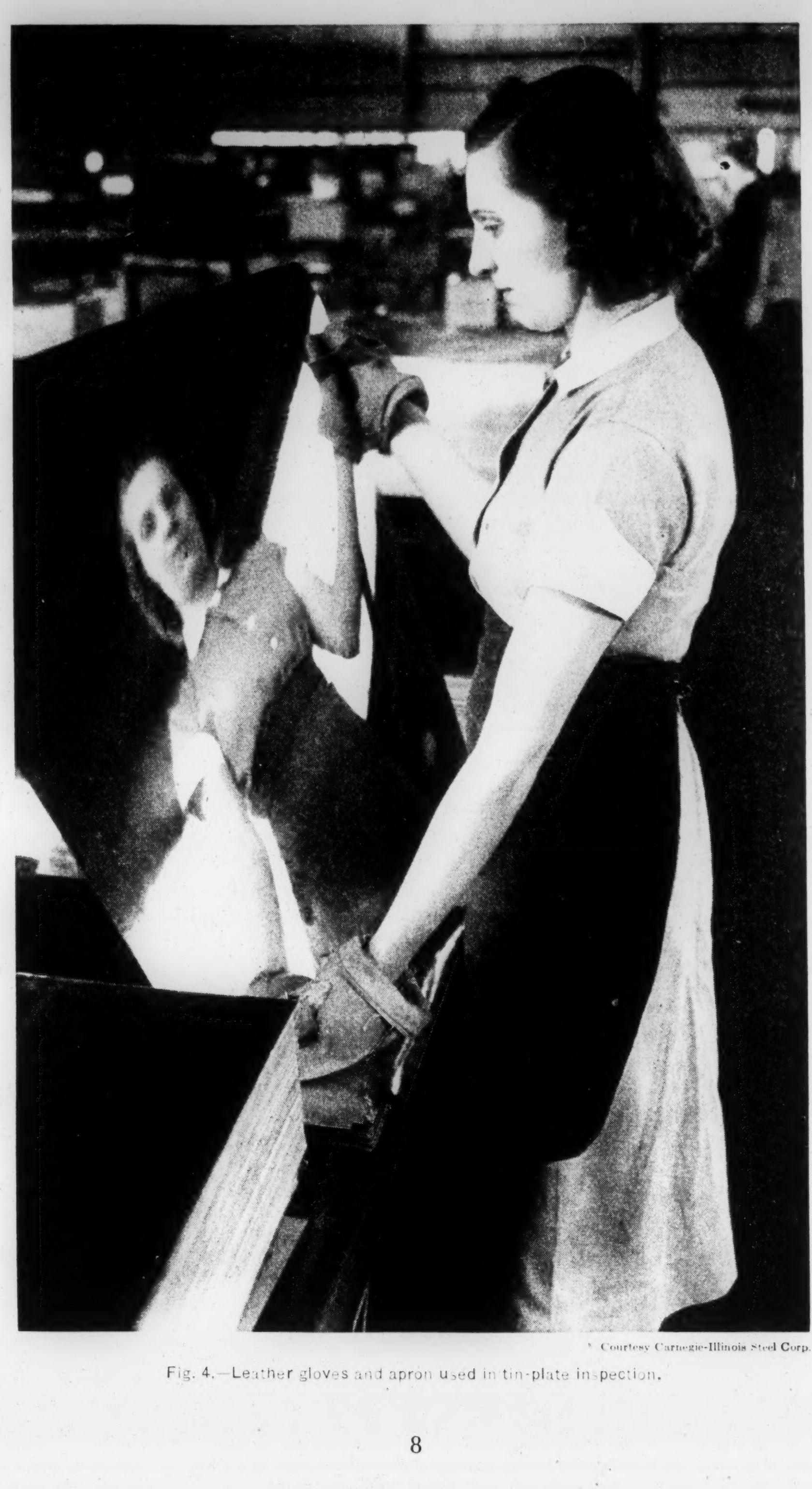
Much assembly work requires handling sharp or rough objects. An ordinary durable glove of inexpensive type will mean comfort and safety in this kind of work. Where the parts handled are small, rubber finger guards may be sufficient. Adhesive tape so often seen around the workers' fingers is a poor substitute, since its constant use has a harmful effect on the skin and may even be the cause of a definite irritation.

An operator handling sharp particles wears hand protectors of leather such as goatskin to protect her hands from the minute chips. Rubber finger guards are worn to make it easy to handle the small parts.

Figure 4 illustrates the need for gloves in another operation at which many women work—inspection of tin plate.

Hands are most often affected by the skin diseases caused by a great variety of substances used in industry. Gloves made of fabrics that absorb moisture may become so saturated with the harmful substance that they are worse than no gloves.

The United States Public Health Service has studied fabrics to find satisfactory protection against such harmful materials. As a result they recommend as the most suitable protection against skin irritants Pliofilm, Vinylite, and Koroseal. These materials prevent the irritants from coming in contact with the skin and they have the advantage of not being inflammable.



Courtesy Carnegie-Illinois Steel Corp.

Fig. 4.—Leather gloves and apron used in tin-plate inspection.

They are easily washed with soap and water. With ordinary care they will last for months in rough occupations. In gloves they have an elasticity like rubber, without the clammy feeling of rubber. They can be used where rubber would be attacked by the chemicals used, or where the worker is allergic to rubber itself. Rubber has other disadvantages, aside from its uncomfortable feeling; it is heavy, tears easily, and may cause dermatitis in susceptible workers.

Protective hoods, sleeves, gloves, and aprons of this type of material may be worn. Sleeves should fit snugly over the gloves so that wrists as well as hands are protected. Such protection is especially helpful where objects are lifted above shoulder level and may run down onto the forearm, or where material may collect on the edge of the glove and be rubbed into the wrist.

Gloves used in working should be considered carefully from the point of view of comfort. Leather gloves particularly should be checked for heavy rough seams or rough edges. Continual irritation of the skin opens the way for infections.

Gloves are used more than any other single item of protective clothing, but around moving machinery a glove is as taboo as a necklace or a ring. Serious accidents have been caused by wearing gloves while operating drills, punch presses, lathes, and other machines. It is a temptation to wear gloves because of the frequent contact with oil and greasy objects. Substitute protection is available for such occupations in the creams and varnishes on the market. No one cream or varnish is suitable protection for all substances, and the best method is to use the specific type of protection advised for each general group of irritants. In many cases pure lanolin or a cream with a lanolin base is adequate. Examples of mixtures requiring special protection include chlorinated solvents, gasoline, chemical mixtures; turpentine; alcohol; turpentine and hydrosolvent mixtures. For such mixtures advice about the protection to use should be given by the plant physician.

An important consideration when a cream or varnish is used for protective covering is that it may be washed off with a suitable soap cleanser.

Jewelry Has No Place in the Factory

No jewelry is suitable for factory wear. The useful wrist watch, the frivolous earrings, necklaces, rings, and bracelets, though attractive in themselves, have no place in the factory. Some companies make definite rules that no visible jewelry may be worn.

Jobs With Special Dangers Require Special Kinds of Work Clothing

Safety clothing now provides protection against almost any hazard in any type of work. The worker dressed specifically for her job is safety conscious and less likely to have an accident.

The following list indicates the particular personal equipment necessary in cases of exposure to the hazards listed:

If the hazard is—	*The worker should wear* [1]—
Corrosive substances, alkalies, or acids.	Coat or apron of rubber; rubber or chrome leather shoes with wooden soles and, in case of corrosives, with sewed sole; arm and leg protectors of glass-fiber cloth; fiber-metal alloy, or rubber; gloves of rubber or rubberized cotton; rubber hat or hood.
Cuts	Chrome leather is advised for coat, apron, shoes, leg and arm protectors, and gloves. Metal mesh may be necessary in apron and in arm and leg guards, and gloves may be of canvas, metal mesh, or cotton. Head covering may be of plastic composition, duralumin, or vulcanized fiber.
Dermatitis	Clothing of rubber. May necessitate coat or apron, shoes, arm protectors, gloves.
Falling objects	Shoes with reinforced toes; arm and leg protectors of fiber-metal alloy; head covering of plastic composition, duralumin, or vulcanized fiber.
Falls or slips	Shoes with nonskid soles.
Flying particles	Same as for punctures and blows (which see) with the exception that shoes with reinforced toes and metal-mesh or cotton gloves are not necessary, and in some cases an asbestos coat or apron would be preferable to one of leather.

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[1] Where rubber is listed, one of the substitutes such as discussed on page 7 may be used.

If the hazard is—Con.	*The worker should wear*—Continued
Hot liquids	Apron or coat of chrome leather; shoes opening at the side and made of chrome leather; leg and arm protectors of fireproofed duck; asbestos or chrome leather gloves; rubber hat or hood.
Hot materials	Asbestos coat or apron; wooden-soled, chrome leather shoes without front lacing; asbestos arm or leg protectors, gloves, and hat or hood.
Moisture	Rubber coat or apron; chrome leather or rubber shoes; arm and leg protectors of chrome leather or rubber; gloves of rubber or rubberized cotton; hat or hood of rubber.
Punctures and blows; rough, sharp, objects.	Chrome leather shoes with reinforced toes; coat or apron of chrome leather or wire mesh; leg and arm protectors of leather or fiber-metal alloy; gloves may be chrome leather, metal mesh, or cotton; necessary head covering of plastic composition, duralumin, or vulcanized fiber.
Spark explosion	Shoes with sewed or wood-pegged soles, copper-nailed heels.

Leg protectors include spats, leggings, pants, knee pads.
Arm protectors include sleeve and wrist protectors.
Gloves include also mittens, hand pads, finger guards.
Hats include hoods.

(*Material in this list adapted from chart by the American Mutual Liability Insurance Co.*)

150TH ANNIVERSARY OF THE BILL OF RIGHTS

DECEMBER 15, 1941

Freedom of speech
Freedom of press
Freedom of religion
Freedom of assembly
Equal justice to all

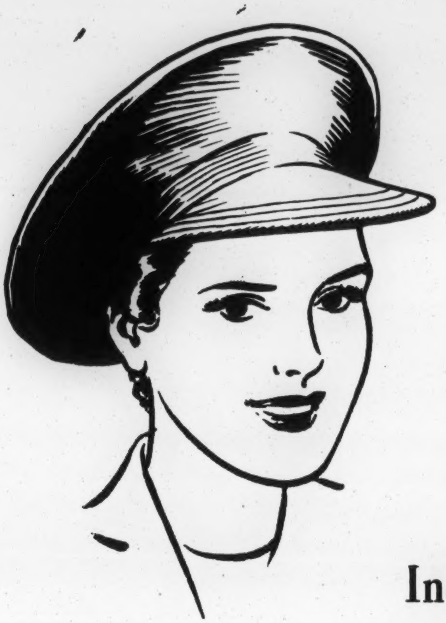
A NOBLE HERITAGE AND A SACRED TRUST

THE American Bill of Rights was ratified on December 15, 1791. The Sesquicentennial Anniversary is celebrated throughout the Nation in accordance with a Joint Resolution of Congress and a Proclamation of the President

GPO 16—24829-1

3.4 Special #9

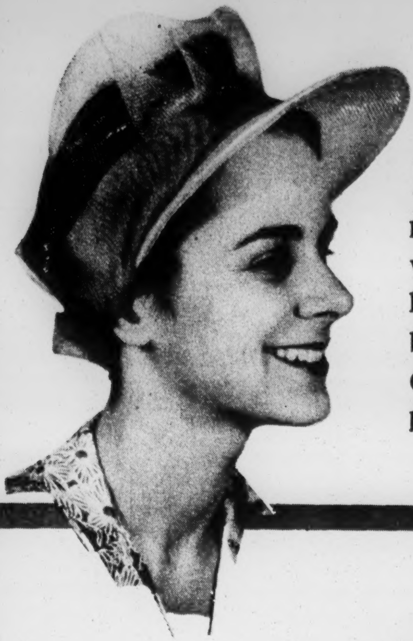
SAFETY CAPS FOR *Women* MACHINE OPERATORS



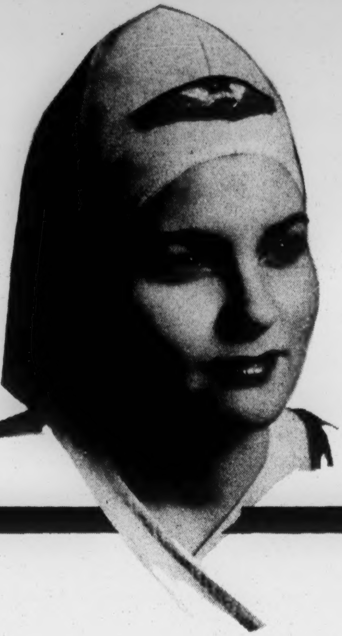
Industrial accidents are one of the potential bottlenecks in war production. Women war workers can help to eliminate this bottleneck by wearing safety clothing. Here are 12 work caps for women on machine operations—all of which meet most of the standards for protection.

THE WOMEN'S BUREAU ★ U. S. DEPARTMENT OF LABOR

SUPPLEMENT TO SPECIAL BULLETIN NO. 9

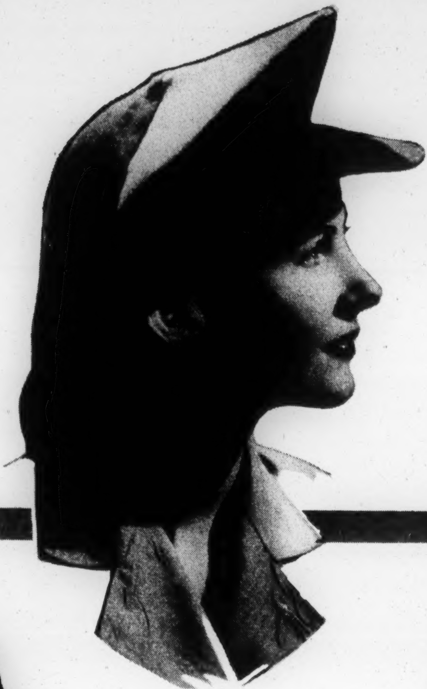


1 Washable plastic mesh, with high crown and broad visor. Cool and lightweight.

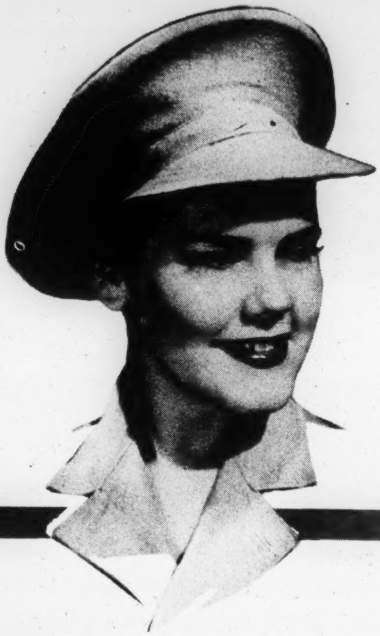


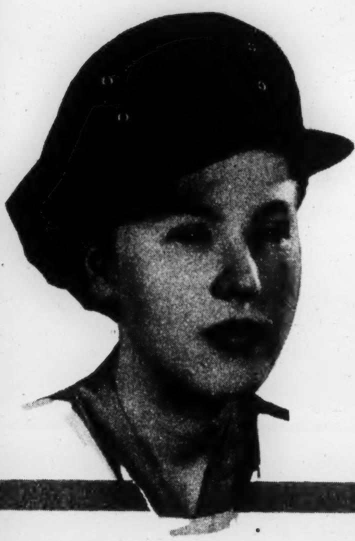
2 Rayon jersey cap worn with visored helmet in clear plastic; also in dark green to protect from light glare.

5 Twill or hopsacking. Washable and lightweight, Ventilated. Drawstring for adjustability.

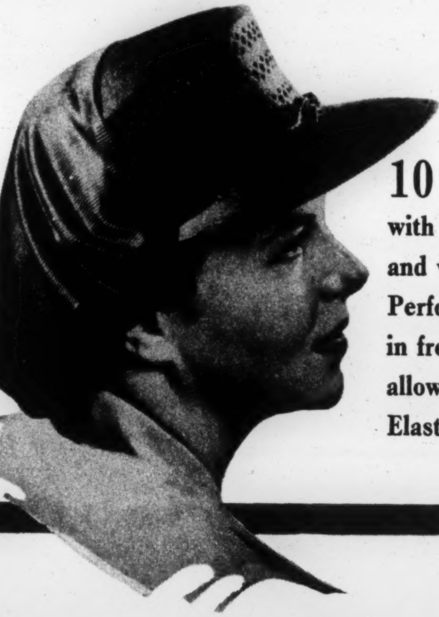


6 Peaked cap with drawstring crown. Lightweight cotton similar to hopsacking. Washable. Also in twill and poplin.



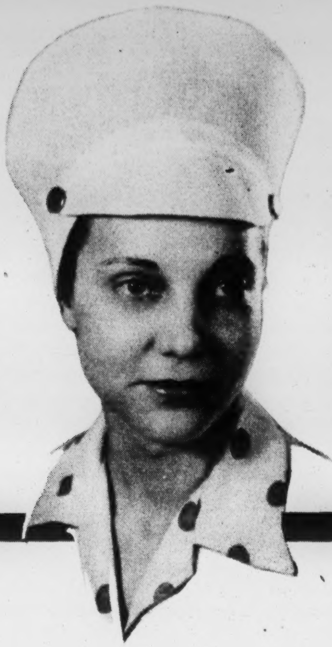


9 Net crown and snood, ventilated over visor. Washable, cool, and adjustable.

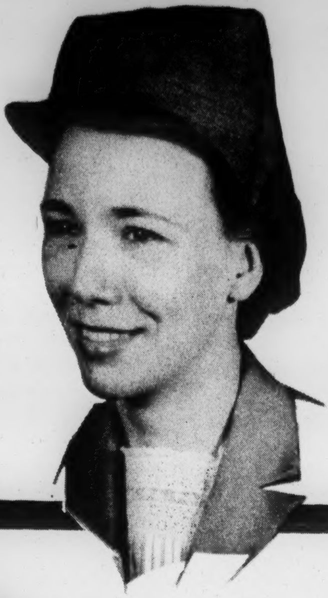


10 Snood of knitted rayon, with felt half crown and visor. Perforations in front of crown allow ventilation. Elastic cord in snood.

★ Write to the Women's Bureau, U.S. Department of L

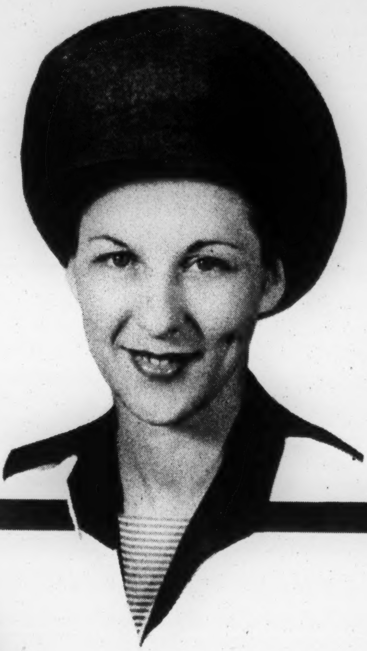


3 Buckram with
stiff crown
and visor.
Adjustable by means of
metal clasps.
Designed for
large machine company.

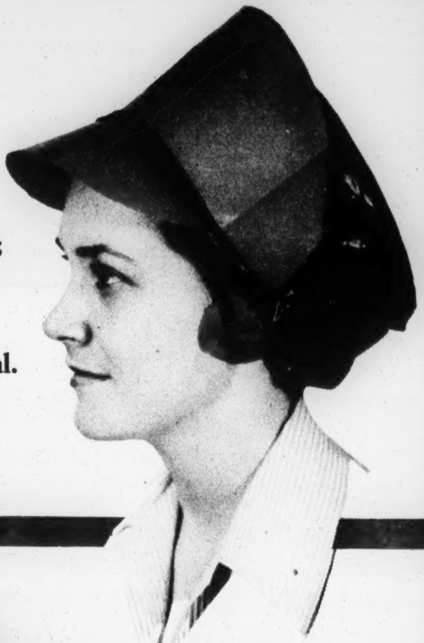


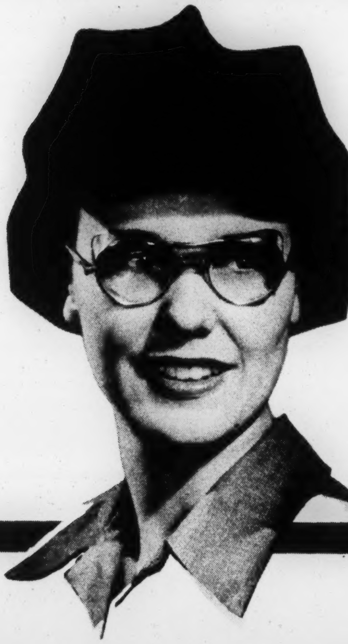
4 Cotton cloth with
stitched and stiffened visor
and crown front.
Net panel for ventilation runs
down back of crown and snood.
Tape ties for drawstring.
Washable.

7 Washable sail-duck,
drawstring snood and
stitched visor.
Hoop of stiff material
inserted in crown
and removable
when cap itself is laundered.

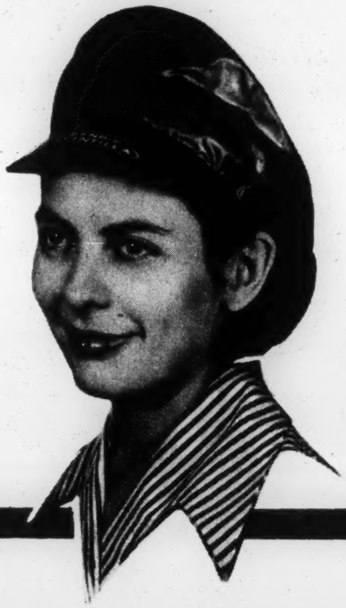


8 Visor and
crown guard of plastic;
snood and crown top
of oil-, dust-, and
moisture-proof material.
Ear protectors are
a special feature.





11 Cotton mesh,
drawstring
and visor.
Cool, washable.
Designed by
safety division of
airplane engine firm.



12 Plastic coated rayon
with net snood
and cellulose visor.
Protects
from grease
and oil.
Washable.

Labor, for manufacturers’ names and prices of bulk lots

☞ IT IS SUGGESTED THAT THIS FOLDER BE POSTED ON FACTORY BULLETIN BOARDS FOR THE INSTRUCTION OF WORKERS

The Women's Bureau of the United States Department of Labor has published three bulletins dealing with work clothing for women. These bulletins, as listed below, may be ordered from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Effective Industrial Use of Women in the Defense Program
Special Bulletin No. 1, 1940, 10 cents

Safety Clothing for Women in Industry
Special Bulletin No. 3, 1941, 10 cents

Safety Caps for Women in War Factories
Special Bulletin No. 9, 1942, 5 cents

U. S. GOVERNMENT PRINTING OFFICE: 1943 O - 552050

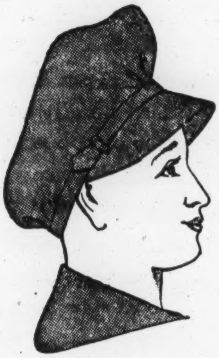
Safety Caps for Women in War Factories

The public has been shocked and employers have been equally distressed by serious injuries to women war workers occurring because safety caps were not worn or hair was not tucked into the cap.

These injuries can be prevented!

Wear safety caps when the job requires!

Tuck hair fully under the cap!



WOMEN'S BUREAU
U. S. DEPARTMENT OF LABOR
Special Bulletin No. 9
October 1942

WHY WEAR SAFETY CAPS?

1. To Prevent Scalping Injuries

Feminine hairdress and machinery often combine badly. Pain, costly medical care, and permanent disfigurement result when hair tangles in machinery. The following happened to women in war factories:

An operator of a spinning machine bent over. Her hair caught in the machine. She was totally disabled for 16 weeks as a result of her injury, and for 45 weeks longer was partially disabled. The injury cost $570 in compensation.

In an ordnance factory, a woman operating a barrel-turning machine leaned too close and her hair was pulled around the barrel. A large clump of hair was torn from her head. She spent days in the hospital recovering from the wound and the shock.

Such examples could be repeated many times. *Every such accident could have been prevented.*

2. To Prevent Skin Infections

Personal cleanliness ranks high in preventing skin infections. Face, hands, and arms can be washed several times a day, but hair cannot. *Hair tucked under a cap will keep clean.* The girl in the example following learned this the hard way, by experience.

A girl in a war production plant suffered a face dermatitis from dirt and grease deposited on her pillow from her hair.

3. To Prevent Serious Burns

Holding a welding torch while brushing back locks from your forehead is dangerous.

A girl spot welder in a lamp factory learned this when sparks ignited her hair. She was lucky to escape serious burns.

Keep the Cap On!

WHO SHOULD WEAR CAPS?

Machine Operators.—Every woman working on or near machinery should wear complete hair covering. Hair will entwine in moving machine parts and cannot be removed before it is pulled out by the roots, sometimes tearing the scalp.

Welders.—Electric and acetylene welders should wear fire-proof hair covering.

Workers Exposed to Dust or Fumes.—Need covering to protect hair and to prevent carrying toxic material on hair.

Workers Exposed to Oils or Grease.—Need covering to protect hair and to aid in preventing skin infections.

WHAT IS A GOOD CAP?

A good cap is safe, comfortable, attractive.

1. *Safety.*—For a worker exposed to machines, a cap must completely cover the hair. Stray curls or wisps of hair can be caught in a machine; partial scalping may result. Headsize should be so generous that hat will be thrown off if it strikes a machine part. Height and stiffness are essential. Height warns the girl that her head is dangerously near machinery. Stiffness guarantees that the cap will not catch in machines. A hairnet alone is not safe; worn fully under a cap, it may help.

Machine operators should not wear a turban or bandanna. It may expose hair, or machines may catch loose ends of cloth. Closely woven washable turbans are good for dusty jobs with no machine danger.

2. *Comfort.*—Caps must be comfortable and light in weight. This helps in enforcing the wearing of caps.

3. *Attractiveness.*—Appearance is important to women. If a cap looks well, women will want to wear it.

ENFORCE USE OF SAFETY CAPS!

Introducing Safety Caps.—A sudden order from the office that all women wear safety hats is not the best way. Better is an experimental period, for women workers to suggest improvements and safety officers to observe. In a company using this method, girls were surprised to find the caps warned them how close to the machines they were.

Enforcing Safety Rules.—Half the enforcement battle is won if safety caps are comfortable and attractive and are introduced by wise methods. Persuasion is better than compulsion. Suitable caps, good supervision, good factory morale, are basic in insuring compliance. In many shops all women wear caps without question.

Work of a woman supervisor or personnel manager often secures cap-wearing. Women resent admonitions about clothing from men. A matron in charge of women's locker rooms as each shift begins can check cap-wearing.

Individual backsliders may appear, and the trouble may spread. For new workers, cap-wearing should be made a condition of employment. An employee who repeatedly breaks the rules must be disciplined wisely, possibly in extreme cases suspended.

Continuing Safety Education.—Vigilance must not be relaxed. Regular safety meetings, especially for women, should be held. These can repeat at intervals reasons for keeping hair covered, and shop rules as to this. Photographs, motion pictures, and posters showing correct cap-wearing help. Gruesome propaganda is a mistake in safety education and is not effective.

Guard Machines Completely. Safety Caps Are No Substitute for Guarding

493780—42 U. S. GOVERNMENT PRINTING OFFICE: 1942

For sale by the Superintendent of Documents, Washington, D. C.
Price 5 cents

35
Special #10

35

UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary
WOMEN'S BUREAU
MARY ANDERSON, Director

✦

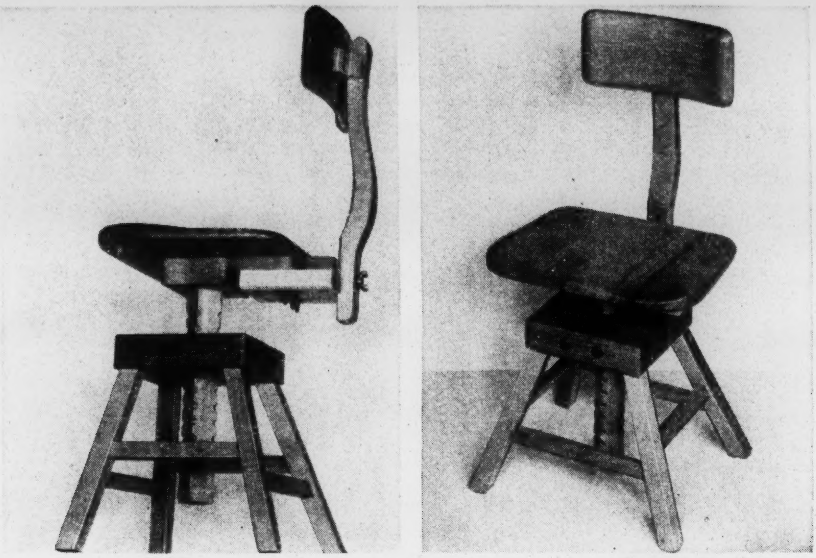
Women's Effective War Work Requires Good Posture

By
MARGARET T. METTERT

Special Bulletin No. 10 of the Women's Bureau

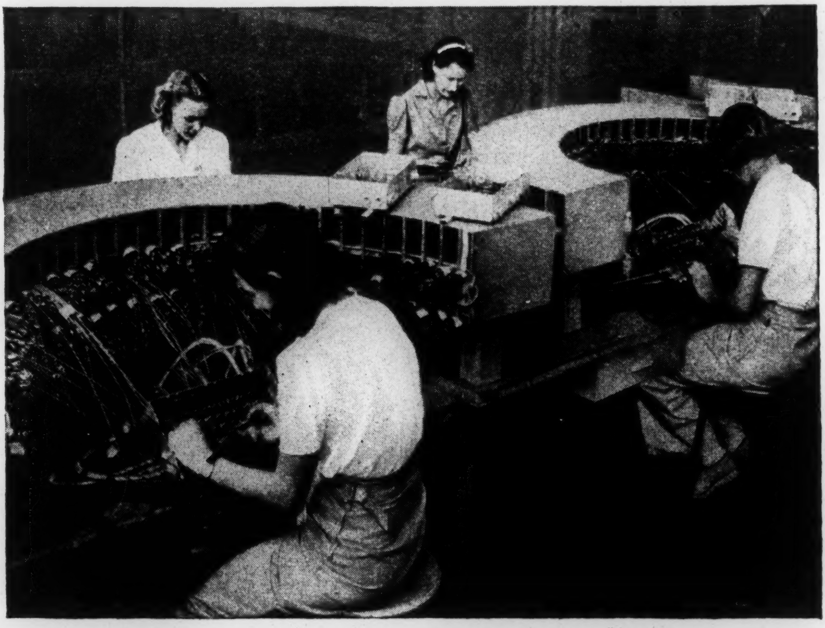
UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1943

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington, D. C. - Price 5 cents



—Courtesy Koenig Co.

GOOD INDUSTRIAL CHAIRS; ADJUSTABLE, THOUGH USING ALMOST NO METAL IN ACCORDANCE WITH W. P. B. REGULATION.



POOR SEATING; NONADJUSTABLE; NO BACK SUPPORT; NO LEG ROOM.

Women's Effective War Work Requires Good Posture

Provide seats that meet good-posture requirements.
Study the job to adapt it to good-posture needs.
Instruct the worker in good posture.
Good posture is dependent on hygienic factory conditions.
The properly seated worker is a more efficient worker.
Seating is especially important to the health of women.
State regulations.
References on industrial seating and posture.

★

Wise management provides working conditions that will reduce fatigue to a minimum and keep workers as close as possible to peak production throughout the day. Adequate seating is one of the conditions that a wise management will provide. Constant standing is a spendthrift of energy. Lack of seats or uncomfortable seating impairs production. It has been proved time and again that much of the burden of fatigue depends on the posture of the worker. Not only do waste effort and increased spoilage result from excessive standing or improper seats, but tired workers are more likely to have accidents. Even with today's restrictions on use of metal, suitable seats, largely of wood, can be provided.

Alternating from sitting to standing diminishes fatigue. No matter how correct the working position is it becomes irksome and tiresome after a protracted period. Constant standing is harmful but constant sitting may be just as bad.

By the use of adjustable seats, many jobs can be arranged for either sitting or standing. The work level should be constructed at average standing height, and each worker's chair should be adjusted to a height at which her elbows are the same distance from the floor whether sitting or standing.

There must be no obstruction under bench or machine to interfere with the worker's knees when seated.

If careful analysis of the job shows that posture variation by use of alternate sitting and standing is not possible, rest periods should be introduced to vary posture. If the job must be a standing one proper seating facilities should be available during rest periods, and if the job requires continuous sitting it should be possible for workers to walk around during the rest period.

Provide Seats That Meet Good-Posture Requirements.

From a physiological point of view the correct sitting posture is that in which the weight of the body is carried on the bones that form the base of the pelvis and the body is held erect by muscular action that prevents sagging at the waist. Circulation is aided by keeping an angle greater than a right angle at the knee joints. Stooping should be reduced to a minimum.

To conform to these physiological needs the following are essentials in industrial seating:

It is necessary that the seat be adjustable to the height of the machine or bench.

The seat should be 16 to 16½ inches wide and slightly saddle-shaped.

The seat should not be too deep. Depth should be sufficient for comfort without constricting blood vessels under the knees. From 12½ to 13½ inches from front to back is adequate.

The back of the seat should support the lumbar region—the small of the back where fatigue first is noticeable. The back of the seat should be adjustable to the individual.

Footrests with a firm nonslip surface should be provided.

Seats that can be easily moved out of the way when the worker stands are desirable.

When employers say that workers prefer to stand, it is certain that seats have not been correctly adapted to the job. Common faults of industrial seating include (1) No back support; (2) fixed seats too high or too low; (3) seats poorly shaped and hence uncomfortable; (4) benches or tables too low to allow for the worker's knees while at correct sitting height; (5) no footrest; (6) too little room between seats.

Study the Job to Adapt It to Good-Posture Needs.

A job analysis is a preliminary requirement to the provision of a good factory seat. Each operation usually done standing should be studied to ascertain whether it can be performed from a seated position or while alternating standing and seated positions. Rearrangement of work material, readjustment of seats, or planning of special types of seats can make it possible to provide seating at almost any factory job on which women may be employed. Sliding seats have been devised for work caring for several machines or moving along a table. Conveyors or turntables can be adapted to make walking back and forth unnecessary. Crowding in plants to hasten war production may complicate the problem of seating workers, but it does not make proper seating impossible. Industrial-seat manufacturers have devised good-posture seats of wood so that the withdrawal of steel for immediate war needs will not make standing at work necessary.

Instruct the Worker in Good Posture.

A person may sit properly on any kind of seat, a soap box if necessary. To do so requires considerable muscular effort, which itself is fatiguing. On the other hand, a person may assume a poor posture in a well-designed chair.

The worker should be told that good posture is a necessary part of efficient operation on her job. She should be instructed to sit well back in the chair, with her back erect but not stiff, so that shoulders and arms will be free to move comfortably. She should know that slumping crowds the abdominal organs, retards circulation, impedes respiration, and increases fatigue.

The worker can improve her posture by learning to sit and stand well. Comparative pictures can be used to advantage in the training period to demonstrate the best way to sit and stand and the disadvantages of poor posture. The woman worker can improve her posture by selection of well-fitting shoes with low heels and room for the natural spread of the toes. Comfortable clothing suited to the work contributes to good posture. Maintenance of good posture and instruction in correct posture can well be combined with brief periods of exercise for workers who spend most of their workday seated.

Good Posture Is Dependent on Hygienic Factory Conditions.

Fatigue from any cause is almost certain to result in poor posture. Hence an important feature in the maintenance of good posture is attention to other factors in fatigue prevention, such as lighting. Good lighting is inseparable from good posture. The amount of light on the work should conform to the recommendations of the Illuminating Engineering Society approved by the American Standards Association in March 1942.[1] Lighting should be carefully designed to prevent glare. The value of good-posture seats can be nullified if the operator is forced to adjust her posture to prevent eyestrain.

The Properly Seated Worker Is a More Efficient Worker.

Of the beneficial effects of good-posture seating disclosed by investigations, the following are typical examples:

> Providing chairs and tables suited particularly to the occupation increased production in a rubber factory so that 16 girls did as much work as 20 had done before.
>
> Women polishing metal increased their output as much as 32 percent when special seats were provided that made it possible to work seated or standing.
>
> When workers could alternate sitting and standing, muscular ability increased by 6 to 15 percent over muscular ability when either standing or sitting all the time.

Seating Is Especially Important to the Health of Women.

Seating is particularly important for women. Continuous standing may aggravate menstrual troubles, and under no circumstances should it be required of pregnant women. Further, because of their tendency to suffer from varicose veins, standing is harmful for women. In the recent medical study of 536 New York department-store employees over 40 years of age who had been at least 10 years at this work,[2] women who stood or walked showed a higher incidence of varicose veins than those who sat at their work, a condition not found among men. Moreover, there was a decided difference between the men and the women in the incidence of varicose veins. The difference was by no means due solely to pregnancy, as is clear from the following:

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[1] Illuminating Engineering Society. American Recommended Practice of Industrial Lighting. Approved March 17, 1942, by American Standards Association. For brief summary of provisions of these standards see Women's Bureau Bul. No. 193.

[2] Lake, Michael, M. D.; Pratt, Gerald H., M. D.; and Wright, Irving S., M. D. Arteriosclerosis and Varicose Veins: Occupational Activities and Other Factors. *In* Journal of the American Medical Association, Vol. 119, No. 9, June 27, 1942, pp. 696–701.

	Percentage with varicose veins
Men	40.7
Women	73.2
Never pregnant	66.9
One or more pregnancies	79.5

The physicians who made this study attribute the difference, at least in part, to the "noticeable difference in the firmness of the surrounding tissues supporting the venous back pressure." The part played by high heels and inactivity of leg muscles has not been explored.

State Regulations.

All States but Mississippi have laws that require some kind of seating accommodations for women workers. Most of the laws require that seats be available for women when they are not actively engaged in their duties or when sitting does not interfere with the proper discharge of duties. Few give consideration to seating at the job.

In many States the laws apply to all or practically all occupations or industries, in a number to manufacturing and mercantile establishments, and in a few to mercantile occupations only. Manufacturing occupations or industries are covered in the laws of all States but Alabama, Florida, Maryland, Mississippi, North Dakota, and South Carolina. The extent of enforcement varies widely even in normal times. With the rapid new employment of women in war industries and the consequent overcrowding, the present situation as to enforcement is confused.

Most of the States specify that "suitable" seats shall be provided, some designate "chairs, stools, or other contrivances," a few provide that seats may be permanent fixtures so adjusted as not to obstruct the work. Regulations in four States—

Kansas, Minnesota, New York, and Ohio—specify seats with backs; in California, Kansas, and Washington there must be footrests. California and Washington require adjustable seats at work tables or machines to permit the position of the worker in relation to her work to be substantially the same whether seated or standing.

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U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

(March 1944)

THE WORK OF WOMEN ON PNEUMATIC TOOLS

The Employment of Women

Reports from various parts of the country show women employed in increasing numbers on a variety of pneumatic tools--chipping hammers, air grinders, light rivet guns, weld-cleaning guns, pneumatic hammers, pneumatic drills, scaling guns, and sanders. These vary in weight from very light, small tools to tools weighing up to 18 lbs. or more. A number of shipyards still exclude women from any operation of pneumatic tools on the basis that this is not desirable work for women.

Recommended Conditions for the Employment of Women

The problem of safeguards for the woman operator's health was brought to the attention of a number of industrial hygienists. Their recommendations will be useful to employers who now have or are contemplating using women on these jobs: [1]

1. Women with the following characteristics are best suited for work of this kind:
    a. Above average in stature and muscular development.
    b. The phlegmatic, rather than the nervous, type.
    c. Having a history or normal menstrual periods.
2. Women with a history or clinical diagnosis of pelvic disorder, especially pelvic congestion, should not use vibratory equipment, even of the rotary type.

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[1] Those consulted include Dr. Alice Hamilton, Medical Advisor to the U. S. Department of Labor; Dr. Leonard Greenburg, Executive Director, N. Y. Division of Industrial Hygiene; Dr. M. H. Kronenberg, Chief, Illinois Division of Industrial Hygiene; Dr. Philip Drinker, Chief Health Consultant, U. S. Maritime Commission; and the Council on Industrial Health, American Medical Association.

3. Pneumatic apparatus should not be used by pregnant women, by women who have had repeated pregnancies or abdominal operations, or by women with unusually large breasts.

4. Adjustment should be made in size and weight of tools for use by women. Women should not use heavy pneumatic equipment.

5. A sitting posture is preferable over an upright position.

6. If standing is necessary, rest periods in the prone or knee-chest position are recommended.

7. On periodic examination, women showing vasomotor disturbances, nervous or arthritic changes, should be transferred to other work.

8. Consideration should be given to change of job from time to time.

9. Counterbalancing, suspending, or propping tools should be done wherever possible to relieve operator of weight and vibration.

10. Women should not brace tools such as rivet guns against the chest. It is believed that following such practice might aggravate a tendency to develop cancer of the breast.

11. If the work involves production of silica-containing dusts, techniques for completely controlling them should be employed. This holds, of course, for all workers, men and women.

Pathology Resulting from Pneumatic-Tool Operation

A brief resumé of possible effects of using pneumatic tools will indicate the reasons for careful protection of operators. The International Labour Office made a detailed survey in 1938. The following paragraphs are based on this material, much of which relates to workers in such heavy industries as stone quarrying and mining. [2]

Pathological conditions resulting from the use of pneumatic tools are chiefly vascular disturbances and injuries to the joints. Also of importance are the effects of noise on hearing and the effects of dust if it is produced by the operation. The effects of noise and vibration on the nervous system are less well known but may be serious.

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[1] International Labour Office, Supplement to Occupation and Health Section on Pneumatic Tools. Geneva, 1938.

The common vascular disturbance is a local anemia of the hand supporting the tool. In a right-handed person, the left hand is affected. Generally only the fingers or finger tips are affected, becoming stiff and awkward and unfit for work. This condition disappears after a period of rest. At the end of an attack, the fingers suffer from a burning sensation. The condition, known as "dead fingers," is attributed to the shock and vibration of the pneumatic tool acting on the blood vessels and on the nerve trunks. The way the tool is held is important, since a rigid position of the fingers has been found a principal cause of this type of injury. Such disturbances are accelerated by cold. They are most likely to affect workers who have not yet acquired skill in handling the tools.

Injuries to the joints are less common but tend to be much more serious, sometimes being permanent in character. Injuries described include necrosis, arthritis, and bone cysts.

The intensity of the symptoms in any particular case depends upon (1) the manner in which the tool is held, (2) the weight of the tool, (3) the nature of the work (intermittent or continuous, lasting during the whole work period or only part of it), (4) hardness of material worked, and (5) the posture of the individual. Indications are that individuals vary in susceptibility. Some may be affected after a few months while others can work for years without such symptoms.

Joint injuries most frequently occurring are those to the elbow, especially of the arm holding the tool. It is believed that this preponderance arises from the fact that repeated shocks are directly transmitted to the elbow from the tool. When the pneumatic tool is held in an unnatural position, other locations of injury are found. Support of the tool on the thigh has been known to result in serious arthritis deformans of the hip.

Prevention of Pathological Symptoms

The operator should use pneumatic tools only for short periods at a time. Rest intervals are important.

Tools of small caliber which do not give rise to strong percussion are recommended. The escape of air should be provided for in front of the tool and not by the side of it; the air pressure should be as low as possible. Attempts should be made to supply supports for the tools, such as a counterbalance arranged for a pneumatic hammer.

It is essential that the worker be taught the best method of holding and maintaining the tool in position.

Physical examination prior to employment should exclude from such work those with symptoms of arthritis. Annual examination should include X-ray, particularly of the elbow, to detect changes in bony structure.

MEMORANDUM:

September 1, 1942.

SUBJECT: On interview with Occo Goodwin, M.D. (woman surgeon) on Employment of Women in Heavy Industries.

1. Dr. Goodwin is a Specialist in the care of Women. She was consulted for possible additional information and suggestions on the Employment of Women in Heavy Industries, such as the Pacific Car & Foundry Company, Renton, Washington.

2. Dr. Goodwin agrees in general with the conslusions of the Special Bulletin No. 2, Women's Bureau, U. S. Department of Labor, titled "Lifting Heavy Weights in Defense Industries". However, Dr. Goodwin points out, that the data on page 4 under the heading "Limited strength of average woman precludes her employment in work that is excessively heavy", is not particularly useful in our present problem, since it would be important that the contractors employing women for heavy industries employ not ordinary women but extraordinary women.

3. Dr. Goodwin makes the categorical statement that women of proper frame and muscular development can do heavy work provided they are properly pre-conditioned both physically and psychologically. Psychologically, Dr. Goodwin points out, that many women are accustomed to thinking of themselves as physically inferior and unfir for heavy work, when as a matter of fact, many of them are capable of doing work comparable to the work that can be done by men. Hence, she suggests that it would be desirable to pick those women who are least affected by this tradition and especially to pick women whose minds can be re-conditioned.

4. Both from the standpoint of psychological conditioning as well as physical conditioning, Dr. Goodwin suggests that it is very necessary to have every woman go through an educational period in which she starts with lighter tasks and works up to heavier tasks. This period should be from three to four weeks. Muscular re-education is most important during this period. Dr. Goodwin points out that contrary to the usual belief, it is possible to re-educate and actually build muscular tissue in women even of middle age. However, she emphasized, that this process must be taken rather easily, so that the woman is convinced as she goes along that the work is not too heavy for her.

5. About adaptation of various racial groups, Dr. Goodwin suggested that women of Polish Ancestry, Finnish Ancestry, Norse Ancestry, etc. who are of big frame and well developed muscularly, are probably our best source for such labor. Psychologically they are better, too, because their traditions are for women to work.

6. In the employment of women in such tasks, there is danger of having an excessive number of attempts to relate maladies, real or otherwise, to occupational causes, among these maladies are hernia, back pains, muscular pains and even arthritis and rheumatism.

7; In the employment of large number of women, such as should be employed at the Pacific Car & Foundry Company, Dr. Goodwin believes that a very careful personnel service supplemented by adequate intelligent and specially trained medical help should be used. Another thing that is particularly important, is that the medical history of the women be more carefully investigated than is necessary for women who are employed at lighter work. Dr. Goodwin says that there is nothing in the normal physique of a woman which precludes her employment at comparatively heavy tasks, and she has seen no evidence to support contention that women are more subject to injury or health impairment than men of comparable strength.

8. Both from the psychological and physical standpoint, she suggests, that it is most important to supervise and educate women employed on the matter of diet, since they will require plenty of energy and plenty of vitamins to catalyze metabolism.

WALTER L. BURROUGHS

Ind. Hygiene

State of Michigan
Department of Labor and Industry
Lansing, Michigan

June 17, 1942.

PROVISIONS GOVERNING EMPLOYMENT OF WOMEN

1. Women shall not be required to remain standing constantly, and seats shall be provided.

2. Women shall not be required to lift more than 35 pounds in the course of their regular work, provided that women shall not be required to lift more than 20 pounds when ascending stairs.

3. Women shall be prohibited from doing any type of overhead lifting or stacking.

4. Women shall be prohibited from employment in foundries (except in core rooms).

5. Employment of women shall be prohibited in the handling of any of the following harmful substances or in the following operations, unless ventilation and working conditions are approved by the Department of Labor and Industry.

    (a) Lead
    (b) Benzene
    (c) Carbon disulphide
    (d) Mercury
    (e) Arc welding
    (f) Dry grinding wheels

6. Women's dressing rooms and first aid stations shall be furnished with a bed or cot.

7. Women shall not be employed in any other type of employment disproportionate to their strength or in any way detrimental to their morals, health or potential capacity for motherhood.

8. No employer shall discriminate in any way in the payment of wages as between male and female employees in the manufacture or production of any article of like value either on piece work or time basis.

RECOMMENDED EMPLOYMENT PRACTICE

1. Female employees should be required to wear proper safety clothing.

2. Definite rest periods of fifteen minutes in morning and afternoon should be established.

3. Where possible, sanitary lunch room facilities should be made available.

June 17, 1942.

Signed John W. Gibson

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

Excerpts from

WOMEN WORK FOR VICTORY

Safety Engineering, June 1942

Special Factors to Consider

The introduction of women workers in industries or plants where they have not been previously employed will not always be a simple placement and training process--but, when the snags are anticipated, remarkable results are achieved. Management needs to give advance and immediate consideration to some general facts--some limitations, some advantages and some changes in facilities and equipment.

While it is a matter of record that the weaker sex in reality is at least as strong as the so-called stronger sex under comparable conditions of physical training, it is nevertheless true that there are some physical limitations to be considered in the employment of women. As a means of overcoming them, mechanical aids may be used--for example, in load lifting, roller conveyors and pedestal lifts are helpful. Tools may need to be scaled to women and benches made lower for assembly workers.

The safety records of women are better than those of men, but there are special hazards to be recognized. It may be necessary to require the wearing of protective clothing. The safety engineer who selects caps and clothing will do well to consult with the women who will wear them. His interest may be in finding a cap that will prevent hair from catching in a machine, while the employee may also be concerned about a cap which will protect hair from dust and not ruin a new hair-do.

Special consideration for industrial hygiene for women workers is based on the following facts:

1. Women are more susceptible to fatigue than men...

2. Women are absent from work more frequently than men...

3. The extent to which sex differences in illness apply to specific industrial diseases is not known. But it is fully proved that women are more susceptible to certain industrial poisons...

Many persons will advocate the employment of a woman personnel officer to work on problems connected with working women. This is based on the assumption that there is an innate and intangible difference between men and women as employees that will be beyond a man's experience. This is not the best basis for the introduction of women to the production shop. Women are entering war production on the same terms as men. While it may be necessary to make physical segregation in a few respects, the relation of new women to the personnel department is the same as that of new men. Women have a useful place in personnel offices, but not necessarily as concerned with women employees.

Women as first line supervisors can sometimes handle routine departmental problems concerning women more easily than men, and women can train women. The opening of even minor supervisory positions to women will provide a promotion incentive. However, if women supervisors do not correspond in authority with men in similar positions, the employees may be inclined to bypass the woman supervisor and take their problems to the man who is "the boss."

A common opinion is, "Women have no mechanical ability." It is more accurate to say that they have little "mechanical familiarity." Women are not accustomed to working with wrenches and drills, but the lowered level at which training begins also means an opportunity to begin training with correct procedures and safety habits. They do not bring "picked-up" bad habits to the job.

The general approach to the employment of women in industry should be guided by the principle that women, like the automobile, are here to stay, and employers will do well to abandon any preconceived notions of the mysterious, eternal feminine for a realistic determination of the essential differences in efficiency between a female and a male employee.

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

THE INDUSTRIAL HEALTH OF WOMEN IN WARTIME PRODUCTION

By

Margaret T. Mettert, Research Associate
Women's Bureau, U. S. Department of Labor

May 6, 1942

I. New Problems in Industrial Hygiene
II. Special Health Problems of Women in Industry
III. Harmful Industrial Exposures of Women
IV. Exposure to Unhealthy Working Conditions
V. Harmful Conditions Away From Work
VI. Maintaining Physical Efficiency of Workers
VII. Work of the Women's Bureau in Maintaining Health

THE INDUSTRIAL HEALTH OF WOMEN IN WARTIME PRODUCTION

I. New Problems in Industrial Hygiene

There has been an overnight change in the position of women in industry; the sudden entrance of the country into war has moved them from the second line of war production workers to the front line. The long hard war that is ahead of us is women's as well as men's business. While some 8 million men may be called to arms, approximately 18 to 21 million workers will be called upon to supply the essential weapons and equipment and to render the necessary services to support the troops. In this unprecedented effort to produce, women will be employed in numbers never before equaled in American history. Approximately 1 million women are now employed on war work. Before the end of this year from 2 to 3 million women are to be at work on the production of war materials.

A very great many of these women will be "green" workers—workers who have not before been in industry. A very great many will be at work in jobs where women have never been employed. The tremendous growth of new chemical processes in industry, the rapid turnover of employees, together with this assimilation of great numbers of new women workers, particularly of women in jobs never before held by women, bring serious problems for keeping up with the increase in health hazards.

Women bring to their work special adaptability and special skills. Women have proved themselves able to do almost any type of work. Employers state that women adapt themselves readily to jobs requiring constant alertness and can do notably skilled work after sufficient training. They have the ability to work to precise tolerance and can make careful adjustments at high speed with great accuracy. Women workers have an important part to play in war production. Their fullest productivity will depend on safeguarding their health.

II. Special Health Problems of Women in Industry

The question is often raised—why consider the health of women in industry separately from the health of men? What is the basis for special consideration of industrial hygiene for women workers? There are sharply opposed attitudes toward the question. One group demands that women be employed on exactly the same basis as men, the other holds that women need special protection because of inherent physical handicaps. The first is backed by the ardent feminist group who refuse to recognize any limitations in comparison with men. The second is based on the following cold facts:

(1) Women are more susceptible than men to fatigue. A former British Minister of Labor, Margaret Bondfield, speaking in Chicago in

February of this year, made the statement that women begin to slip as efficient factory workers after a 43½-hour working week, while men may work efficiently on a 44- to 48-hour workweek basis. The British Industrial Health Research Board reports that maximum weekly working hours for women should be 5 hours fewer than the maximum for men.

Whether the variation indicated by these and similar studies has a physiological basis or not, it indicates need for special protection for women.

(2) Women are ill more frequently than men are. The Boston Edison Company in analyzing all disabilities of 1 day or longer occurring in the 5-year period 1933 to 1937 found that male employees lost an average of 6.4 days a year because of illness; female employees an average of 9.9 days. A survey by the National Institute of Health in the winter of 1935 to 1936 included a study of the disability of some 280,000 white persons in 8 cities. Approximately 34,000 of these were white women workers 15 years old or over. The rate of illness of women 15 to 64 years of age was about 28 per 1,000 in contrast to 22 for male workers. Women experienced a higher sickness rate than men in each age group.

(3) The extent to which the sex differences in illness apply to specifically industrial diseases is not known. But it is fully proved that women are more susceptible to certain industrial poisons, the best known being lead; and that the reaction of women to even slight benzol exposure may be extremely severe and is likely to take a form different from the reaction of men. Dr. Alice Hamilton states that young women seem to be particularly susceptible to poisons attacking the nervous system, such as carbon disulphide. We know, too, that pregnancy may aggravate and accelerate industrial poisoning. It is accepted among foremen that women machine operators are more prone to oil dermatitis. Tetryl dermatitis is reportedly more common among women munition workers. In one such factory recently visited by the Women's Bureau, women not working with tetryl but exposed to tetryl dusts in the room were said to be more susceptible to tetryl dermatitis than the men who were working directly with tetryl.

It is not the purpose to discuss here the pros and cons of a physiological basis for the greater susceptibility. Nor is it possible now, if ever it was desirable, to eliminate as a class a group of workers from an employment because, as a group, they show a particular proneness to certain occupational illnesses. Instead of such group selection or elimination the exposures must be controlled.

III. Harmful Industrial Exposures of Women

If, then, it is accepted that women workers as a group do need special health protection to maintain their physical efficiency, we must have information about the harmful exposures confronting them. Without such information efforts toward prevention of illness and absenteeism are futile. Approximately half the States have laws on the statute books requiring physicians to report cases of occupational disease to State health departments, but in a very few States are cases reported. The success of at least two States in collecting such data indicates that this reporting can be enforced. Such information furnishes immediate clues to danger spots in industry that then may be thoroughly investigated.

Evaluating exposures that might result in disease, the Pennsylvania Division of Industrial Hygiene, in the predefense production period, studied 16,000 industrial plants and found over 4,500 exposures of women to lead or lead compounds, 7,300 to inorganic nonmetallic dusts, and 228,000 to organic dusts. A similar study by the Illinois Division of Industrial Hygiene included 50,000 women. For every 100 women employed, 59 exposures to some harmful substance were reported. Among the manufacturing industries, the largest proportion of exposures of women per 100 employed was found in iron and steel, machinery and vehicles (where expansion in woman employment is greatest now); for every 100 women employed, there were 85 exposures to some harmful substance. Chemical and allied industries followed with 84 exposures to every 100 employed, and food industries with 84 per 100. Dr. Kronenberg, chief of the Illinois Division, pointed out that though women's work is light the "exposures are still as great and as frequent, the duties highly repetitious, with factors of monotony and fatigue . . . —all of which are definite industrial health problems."

Changes in processes and changes in the use of chemicals will intensify these exposures. The withdrawal of some chemicals for defense purposes will mean substitution of other chemicals, some unfamiliar as to their action on the human body, others known to be more hazardous than those now used. An illustration of importance to women in industry is the probable increase in the use of benzol, since the supply of toluol is needed in trinitrotoluene manufacture—the TNT of ammunition. Toluol had been widely substituted for the more dangerous benzol in leather, rubber, and other industries.

Dr. Clarence Selby, of the Subcommittee on Industrial Health and Medicine, at the National Conference of Industrial Hygienists held last month in Washington listed the following changes in industry as important:

(1) The use of cutting oils is increasing. (Dermatitis from oils is on the increase.)

(2) Grinding occupations are on the increase.

(3) Shot blasting is being replaced with sand blasting.

(4) More concentrated solutions, to hasten the process, are being used in XXX pickling.

(5) Solvents, mostly chlorinated hydrocarbons, are more widely used and some are assumed to be nontoxic though their effects are not well known.

(6) X-rays are used more frequently than formerly.

(7) There is greatly expanded use of welding.

(8) Working hours are lengthening, increasing the time of exposure to poisons and irritants, and through fatigue increasing the individual's susceptibility.

(9) There is a shortage of industrial physicians, industrial nurses, and industrial hygienists.

Among the rapidly expanding hazardous processes that are employing women is dial painting with radioactive paints. In peacetime about 100 had jobs in this woman's occupation in New York State, a center for such work. By the summer of 1941 the 100 had increased to about 2,500. The use of these paints on aeronautical instruments makes further expansion probable. In this occupation, research resulting from the tragic deaths of women so employed in the first World War pointed to safe methods of handling radioactive paints. A code for its use has been formulated by a committee brought together by New York State authorities.

Welding of various types is employing many women. These jobs have serious hazards, and at least one State, Pennsylvania, prohibits most welding occupations for women. Intelligent precautions, however, can insure safety for welding operations, and regulation and inspection should take the place of prohibition in this case.

Grinding occupations can use many women, and here too, with proper precautions, outlined in the American Standards Association Safety Code for Abrasive Wheels, women can be employed safely. Yet three important industrial States, Ohio, Michigan, and New York, have laws prohibiting the employment of women in grinding occupations generally.

In 1941, reports of industrial illness in Ohio showed that dermatitis from cutting oils was most important in point of number of women affected. Other skin infections were reported as caused by dyes in canvas, various chemicals not specifically designated, chromic acid, shellac, nickle-plating solution, bakelite, ethylene dichloride, carbon tetrachloride, and so on.

Repetitive motion in various occupations such as riveting, armature winding, and machine operations may cause disabilities. Tenosynovitis cases, synovial cysts, and other conditions resulting from strain were reported. Other occupational diseases reported to women in recent years included ethylene dichloride poisoning, chrome ulceration, benzol poisoning, lead poisoning, carbon tetrachloride poisoning, silicosis, and zinc poisoning.

IV. Exposure to Unhealthy Working Conditions

Much more than specific harmful substances must be considered in a survey of a healthful working environment. We need information on the many phases of fatigue prevention—not only length of shift but shift rotation, lunch time, rest periods, monotony, noise, posture, and lighting and ventilation under blackout conditions. Research in the abstract sense in these matters is impossible now and must be a by-product of production. What Canada and Great Britain have learned in their 2½ years of war production will be useful to us. Basically the knowledge is available to set up and maintain hygienic conditions in industry. The necessity for such maintenance, in spite of the difficulties expansion brings with it, must be put across. The British have found that increase of hours means increasing absenteeism caused by illness and British reports show that this increase is greater for women workers.

V. Harmful Conditions Away From Work

The health of working women cannot be considered solely from the point of view of the exposures of the working environment. Health cannot be broken down into 8-hour shifts, but represents a continuous state. It has been estimated that nine-tenths of absenteeism caused by disability is due to nonoccupational illness or injury. That 90 percent is costly to industry and should claim recognition from those interested in efficient management. Mr. Andrew Fletcher of the St. Joseph Lead Company states that 2.3 extra men must be carried for every 100 on the pay roll to provide for production of absentees. He has estimated that sickness absenteeism costs his company $70 per employee per year.

Those interested in the health of women workers cannot be blind to the implications of the Tolan Committee reports on housing problems in defense areas, to the need for good recreational facilities, to difficult transportation problems, to the increasing tuberculosis incidence that follows war, to the nutrition needs of their working force, and to the special food problems that rationing may bring.

VI. Maintaining Physical Efficiency of Workers

Both employers and workers must become safety conscious in the field of preventing disease and poisoning. Industrial hygiene divisions, such as exist in 36 States, and State labor departments are cooperating toward that end. It is of prime importance that this work be expanded, to foresee and prevent increasing disability from unhygienic conditions in industry; that it be carried on in every State; and that these divisions be adequately staffed and furnished with sufficient laboratory facilities. Through these agencies new materials can be analyzed and technical advice given as to adequate protection.

Employers have recognized their stake in the health of workers and in increasing numbers are including medical staffs in their establishments. The preemployment physical examination has come into general use in some industries. With proper safeguards of workers' rights, careful physical examinations can make it possible to suit the individual worker to the job and thus increase the efficient operation of that job. Further, such examination can reveal slight correctable defects that might predispose to disease. The industrial nurse is often in a position to get a complete and authentic story of a woman worker's illness. She can function in the work of health education quite as importantly as in the furnishing of first aid.

Of greatest importance in building up resistance to disease of occupational as well as general origin is proper nutrition and the prevention of chronic fatigue. Studies have shown that the well-nourished adult can withstand exposures that disable poorly-nourished workers. Early studies of lead poisoning give some evidence that the excessive sickness of women workers was due to their relatively poorer state of nutrition. The women were paid lower wages than men, and their food budgets were on a lower scale. The evidence of the World War period shows that good facilities for lunch at cost prices, and sufficient time to eat, are insurance against ill health. Some employers have had amazing results in lowered sickness rates by furnishing vitamin tablets to workers, or by supplementing the diet with milk or cod-liver oil.

The value of good plant housekeeping should not be underestimated. Provision of good facilities for washing, showers, lockers, and toilets can help to reduce absenteeism.

VII. Work of Women's Bureau in Maintaining Health

The Women's Bureau is concerned with the development of a well-coordinated program for the most effective use of women in war production. An important part of such program is this factor of health maintenance. To carry out this program the Bureau works toward the following ends:

(1) The determination of industrial occupations and processes which may be hazardous to health or safety of working women.

(2) The determination of standards best suited to secure the health of women workers and hence their maximum of industrial output.

(3) The collection of data on operations, working conditions, and current safety and health provisions in industrial establishments.

(4) The determination of the effect on ? women workers of operations and conditions found and of suggested methods of eliminating health and accident hazards.

(5) The recommendation of practicable changes in equipment to correct hazardous conditions.

(6) The preparation of pamphlets covering improved health and safety procedures for protecting women workers.

(7) The obtaining of information and statistics on industrial injuries and working conditions for women.

(8) The following of State laws and regulations relating to the control of industrial hazards to women workers.

RFM

Reprinted from THE WOMAN WORKER, bimonthly publication of Women's Bureau
U. S. Department of Labor, Washington, March 1942

Health and Safety of Women in War Industries

A CONSIDERABLE increase in industrial injuries was reported early in the defense program. Speed-ups, lengthened hours rapidly increased forces (including new workers unaccustomed to their jobs) all have their effect in causing such injuries. The National Safety Council reported that in the first 2 months of 1941 the accident frequency rate increased by 16 percent over the same 2 months of 1940. It was estimated for 1940 that the loss through industrial injury or death was equal to a full-time year's employment for about 780,000 workers.

The British Experience, 1940.

The 1940 report of the Chief Inspector of Factories in Great Britain shows, after more than a year of war, a considerable increase in accidents over several previous years, as well as loss in production after a period of unrestricted hours (discussed on p. 12).

Fatal accidents in 1940 were 24 percent above 1939, nonfatal accidents 20 percent above. Increases in certain defense industries were even greater: Engineering, 33 percent; making of machines and motor vehicles and so forth, 47 percent. The effect of new and untrained labor, including very many women, was seen in the increase of 56 percent in accidents on milling machines, of 48 percent in those on power presses, and a decided increase on automatic lathes and drilling machines. Accidents due to loose hair and clothing increased, leading to a new campaign for the wearing of good caps and overalls and the control of loose articles of dress. A special educational campaign was begun in October 1940 and met with considerable success.

Women as the Sufferers (Michigan).

The extent ot which women suffer in the tremendous toll of industrial injury in this country can be judged only from sample data. A Michigan report gives some indication of this. In the year ending June 30, 1940, 1,400 women workers in that State were compensated for industrial injuries, 82 of them for permanent partial disability. More than 117,000 days were lost by the women, and nearly $149,000 was paid them in compensation. Of the injured women, 308 had one or more dependents.

Automobiles and foundries and machine shops—industries closely connected with war production—accounted for more than one-fifth of all the women injured and for almost two-thirds of those with permanent partial impairments. Together these two industries accounted for more than one-fourth of the total days lost and for nearly two-fifths of the compensation paid.

The great majority of the permanent injuries to women in manufacturing (90 percent in defense industries) were due to machinery. A program for prevention should include adequate guards and machinery upkeep; safe clothing, goggles, and so forth (2 women lost the sight of both eyes, 7 the sight of one eye); and avoidance of fatigue from excessive speed or long hours.

Nursing Service Needs Increase.

As industrial nurses, women may have a part in reducing the loss from accidents, especially since many serious infections can be prevented by adequate first aid. However, many plants, particularly the smaller ones, have little or no nursing service. According to the latest Census, two-thirds of the total factory wage earners were in plants with 500 or fewer employees, and a survey by the United States Public Health Service found that in nearly 90 percent of the factories of this size no nursing service whatever was available. This survey, covering a total of 1½ million workers, showed that practically two-thirds had no access to plant nursing facilities, either full- or part-time.

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WAR DEPARTMENT
Bureau of Public Relations
Planning and Liaison Branch
Women's Interests Section

WOMEN'S BUREAU
FEB 17 1942
DEPARTMENT OF LABOR

Where will this be filed?

Return to Robinson

UNDATED RELEASE

EXCLUSIVE FOR EVENING PAPERS
WOMEN'S NEWS

War Department Favors High Standards for Women in War Industries

Women thinking today in terms of protection for the increasing numbers of women and girls entering war industries have an ally in the Labor Relations section of the Office of Robert W. Patterson, Under Secretary of War.

The set of optimum labor standards just announced by that office as War Department policy includes all the recommendations made by the conference on women war workers held recently by Miss Mary Anderson, Chief of the Women's Bureau, Department of Labor. The program providing vocational training courses for women entering war material production is also favored by the War Department. Such courses are designed to advance the women workers to up-grade jobs and prevent their remaining in immediate placement positions.

Optimum standards set up by the War Department contain a clause advocating equal pay rates for women, including the entrance wage. The eight hour day, the 48 hour week and one-day-rest-in-seven are also recommended. Other provisions endorse adaptation of the hours of labor and working conditions to the age and sex of the worker and adequate meal and rest periods from continuous work.

Women are not yet employed as extensively in strictly war industries as they are in peace time factory work, according to Miss Anderson. But these figures are changing from day to day as more women are introduced into the strictly mechanical processes in aircraft, machine tool and small arms plants. The Women's Bureau points out that women have been handicapped by lack of training in such skills, since the vocational training classes set up in July, 1940, have not been open to them as readily as to men and in some cases, not open to them at all.

Only 17,000 women, or less than one percent of the 1,77~~8~~5,000 persons enrolled, were given training in these classes, up to December 1, 1941.

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SHORTS*****************EXCLUSIVE FOR EVENING PAPERS

Woman Dietitian at Massachusetts Camp

Five Army officers supervising the soldier menus at Camp Edwards, Massachusetts, have added a woman dietitian, Miss Hope Smith of New Bedford in the same state, as a consultant. Keeping the soldier ration cost for this camp within the daily allowance of $4,623 is among the duties of this group, which uses long range planning of two months in advance to make ends meet.

Recently, the ration cost was cut by instructing the camp mess halls in the proper size for individual servings to reduce left-overs.

. . . .

Army Nurses Keep Ireland Secret

The "grapevine" news service at the Armored Force Center of the Army, Fort Knox, Kentucky, was outwitted by the 24 nurses going to Ireland from that post. These young women on duty at the post hospital volunteered for foreign service and then kept the matter so secret, the post only knew about the trip when their names appeared in the news dispatches from Ireland.

With the other nurses in the goup landing in Ireland, these Fort Knox girls are said to have sounded taps on the women-can't-keep-a-secret myth.

. . . .

Jungle Influence

Families of men in the Quartermaster Corps of the Army may find strange, new words creeping into letters home. These soldiers responsible for feeding, clothing and transporting the man with the gun are now studying how to carry on all their functions under jungle conditions.

The Army has issued an 87 page training manual on "jungle warfare" and words that sound unfamiliar on American tongues must be learned to protect the men from poisonous trees, plants and other tropical dangers. Special chapters are devoted to hygiene in the tropics, directions for jungle service supply and evacuation under attack.

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Better Buying for Fourth Corps Area Army Kitchens

Housewives with an interest in cooperative buying or only day-by-day marketing will understand the great advantage to Army kitchens in eight southeastern states in the new meat buying sections to be opened next month in the Fourth Corps Area Quartermaster marketing centers. Besides fish, poultry and meats, these centers are buying 40 different food products from farmers and co-operatives.

Surplus food problems in Dixie may disappear through the buying at these centers. Last year, the South's overproduction of peaches and strawberries was bought by the Quartermaster Corps of the Army.

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(End)

Dermatitis
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WOMEN'S BUREAU
U.S. DEPARTMENT OF LABOR
Washington

THE EMPLOYMENT OF WOMEN IN CANADIAN GUN AND RIFLE FACTORIES

JANUARY 1942

Women's Bureau
U. S. Department of Labor
Washington

THE EMPLOYMENT OF WOMEN IN CANADIAN GUN AND RIFLE FACTORIES
JANUARY 1942

Canada began the manufacture of machine guns early in 1940. By 1941 its factories were producing rifles, anti-aircraft guns, tank guns, and naval guns. The tremendous task of planning, building plants, securing precision machine tools and thousands of tools, gages, and fixtures, had been completed in record time. No small part of the achievement was due to the recruiting of expert tool designers and skilled production mechanics, and the excellent training of the initial machine-operating staff.

The training of the first group of machine operators and inspectors was carried on in the plants. Women were included among the trainees from the beginning. Consequently, they were among the first machine operators and inspectors when production got under way. In January 1942, women were almost two-thirds of all factory employees in rifle manufacture, two-fifths of those on machine guns, and a fourth of those on anti-aircraft guns. So satisfactory have women proved that management plans call not only for an increase in numbers and proportions of women employed as more production becomes feasible, but for an extension in their use to additional operations. Both the Dominion Government and plant management expect women workers to be the "backbone" of rifle and gun production in Canada.

In view of the growing need for women's productive services in war industries in the United States, the satisfactory performance rendered by Canadian women on many kinds of machine tools in rifle and gun manufacture was deemed worthy of examination by the Women's Bureau of the United

States Department of Labor. Such study was made possible through the courtesy of the Canadian Department of Munitions and Supplies. Its Director General of Labor Relations Branch introduced Bureau representatives to officials of certain important plants, who extended full cooperation to the Bureau's agents in permitting them to observe the work women were performing in their factories.

As Canada had no experienced factory woman labor supply available for ordnance production, women without previous work histories or from retail stores or household service form the ranks of ordnance workers. The minimum age limit is 18 years. While one firm fixed a maximum age of 35 years, others have no maximum age limit. A few women past 50 years old are employed. Unmarried women only are accepted unless married women have dependents. High-school graduation is a requisite in the anti-aircraft-gun plant; while other plants report that most of their women employees are high-school graduates, they do not make such graduation a requirement.

OPERATIONS PERFORMED BY WOMEN

Manufacturing processes were observed on four types of weapons: Shoulder rifles, machine guns utilizing recoil or those exploding gas to operate breech mechanisms, and anti-aircraft guns. While all gun manufacture consists primarily of machining steel forgings or castings gradually into final form, exact dimensions, and finish, and while many of the same machine tools are used on each type of gun, the intricacies of production vary widely. The parts to be manufactured in the anti-aircraft-gun plant number 1,256, including bolts, nuts, and screws, while those produced for the other weapons range from under 50 to 189 parts. Obviously, line methods of production, with machines set up for one type of operation, are used where the parts are limited in number and the volume of production is great; whereas the same machines have to be reset and used on many units where parts are numerous. Under the latter condition, machines are grouped by type.

The operations on the simplest weapon amount to beyond a thousand; a description of all work done by women, therefore, is not practicable. A statement of the machines women operate on each type of gun and a description of the work done on a few parts may serve to indicate the range and responsibility assumed by Canadian women in gun manufacture.

Anti-Aircraft-Gun Production

Barrel manufacture for anti-aircraft guns, as well as for other guns, is on a production-line basis. The breech-mechanism department and the carriage and mount departments are organized by grouping machines according to functions; each machine can be fitted with several tools to perform several operations and serves to cut many parts. Heat treatment precedes assembly of parts into the gun.

Machining of the Barrel.

The first production of gun barrels was done by an all-man crew. To-day women are working in this department and more will be employed as certain machine rearrangements are accomplished. As the barrel forging is long and heavy, move-men will assist women operators in setting the barrel in machines.

The barrel forging is centered at both ends by men operators. The external rough turning is done on a Lo-Swing lathe, the later turnings on a Bertram engine lathe, by men, but women will be used to carry on all external barrel turnings. The first bore drilling on a gun-drilling machine also will be done by women, whereas the honing of the barrel on a horizontal borer is already done by women.

Cylindrical grinding on the long taper portion and the straight cylindrical portion of the gun barrel also will be done by women. At present, chambering of the breech end is done on the engine lathe by men; later the plant will change to the grinding method of chambering and women will be employed. The rifling operation is now done by women on a special rifling machine. The milling of extractor slots on the breech end, the cutting away of milled threads at three points on a shaper, are now done by men but will be done by women. But the machining of the threads to accommodate the spring holder and the flash guard will continue to be done by men. And filing and burring also are done by men, as is the parkerizing.

As many of the barrel operations done or to be done by women take 3½ to 8 hours to complete, the worker's main task is a watchful one, making sure that the machine tool is operating correctly.

Breech-Mechanism Machining.

As has been stated, machine tools of one type used on the breech mechanism are segregated into separate departments and hundreds of different parts are routed through for machining operations. The machines in use are chiefly of medium size. Men and women workers read blue prints, secure necessary tools and fixtures, set up their own machines and guide their operation. They must gage their own work and file off burrs.

New employees are given a ten weeks' training period in the plant to-day. For six weeks, one instructor trains six women on machining scrap metal. This shop work is accompanied by class instruction in blue-print reading and shop practice. The next four weeks, workers are on actual production under the direction of an experienced operator. After ten weeks, each specialist is expected to set up and operate his or her machine according to blue prints. There were eight women among the shop instructors, four on milling machines and four on drills.

Women are most numerous in the breech-mechanism department. None are employed on the carriage and mount. As both men and women operate the same kind of machine, though men usually are on heavier parts and heavier machines, a listing of the proportion of women on each machine in the plant will indicate the relative operating importance of women in anti-aircraft-gun manufacture. This tabulation follows:

Machine	Total number of operators	Percent of women in total
Horizontal miller	88	60
Vertical miller	76	57
Large vertical miller	92	13
Gear cutter	4	-
Gear hob	10	50
Thread miller	6	83
Broacher	1	-
Profiler	8	50
Grinder	21	76
Turret: Chuck	109	24
Bar	75	21
Lathe, engine	78	12
Slotter	20	10
Planer	28	-
Shaper	4	-
Drill	61	43
Vertical boring	42	-
Horizontal boring	26	-
Saw	1	-

Women are employed also as tool crib attendants, to grind miller cutters in the tool room, and to operate the blue-print machine, as well as to draft. Forty percent of the workers in the oil-treatment unit are women, though none are employed in heat treatment. A few work on the main assembly, but for the most part this is regarded as too heavy for women to handle.

The Dominion Government employs women inspectors to inspect parts for accuracy and finish. They are college graduates or college seniors who will be given credit toward their degrees for the time spent in Government inspection.

According to plant management, once the fear of the machine is overcome, women learn quickly. They are keenly conscious of the value of the metal they machine and make few errors. Of 400 to 500 women trained, only 6 failed to make good on production.

Machine-Gun Production

As has been stated, over 40 percent of the factory employees in the Canadian machine-gun establishments visited were women. It is anticipated that the force will be doubled and the proportion of women increased to 60 percent or higher.

To-day, pre-employment courses under the Dominion-Provincial War Emergency Training Program are firm sponsored. Prospective employees are sent to the technical high schools and are given a two weeks' course in the use of many types of gages, bench work, and hand filing. After a one-day lecture on company regulations and policies, women go on the job and are trained under the supervision of a more experienced worker and the foreman. They are trained to do one operation first and later learn machine set-up and are upgraded to more difficult work.

The machine guns produced have from 163 to 189 parts. They require from 2,200 to 2,846 operations, two-thirds of which are machine operations. While in many cases one machine is used exclusively for one operation, in others the same machine is fitted with several tools to perform several operations. By far the largest number of the machine tools used in production are millers. Drills are second, followed by profilers, grinders, lathes, automatic screw machines, and hand screw machines. Among the miscellaneous machines of which a few are used are power saws, broachers, honing machines, punch presses, borers, and rifling machines.

The largest proportion of women machine operators are on milling machines, including hand millers, vertical millers, horizontal millers, spline millers, and rise and fall millers. As women become familiar with millers, they are taught to set up their own machines. Practically all the drilling is done by women, who also are upgraded to set up their machines.

They also do profiling; some set up their own work. Turret and engine lathes and both wet and dry surface and cylindrical grinders are operated by women.

Barrel Machining.

The size of the machine-gun barrel forging is much less than that of the anti-aircraft gun. Girls are now employed on most of the operations on the barrel. They make the original tests of barrel bars for hardness, Girls face, center, and spot the barrel forging on lathes. While men were doing the rough and finish turning on the exterior, women did the interior drilling, reaming, and rifling. Women also do the thread cutting. As on other gun barrels, chambering, lapping, inspection and straightening by the Shadow Method fall to men.

Sideplate and Cartridge Magazine Machining.

On the flat stock machined to side plates used in one type of gun-body case, women perform somewhat different operations from those performed on other gun parts. These flat surfaces are ground on all sides for locating surfaces for succeeding machine operations. Blanking for cover and cartridge openings is done on two dies by men. Surface edges are ground and finish-milled by women. Women also mill slots and finish-grind edges. All holes in the side plates are drilled and reamed by women and the grooves in the plates are milled by women. Hand lapping of some parts after grinding brings the piece to precise tolerance.

On the cartridge magazine, men operators blank and form the parts and weld the two sides on a hydrogen arc-welding machine. Women do the finish torch welding on the end of the cartridge magazine and file away part of the weld. They also perform profiling operations, sand away burrs, and polish the assembled magazine.

Other Operations Performed by Women.

While the larger proportion of women are engaged in machine operations, over a fourth are inspectors. Many are bench workers and some parkerize parts and engage in gun assembly. Women do both in-process inspection and final inspection - using, for example, micrometers, dial indicators, plug gages, and the Rockwell hardness-testing machines. Bench work consists of burring, filing, lapping, sanding, fitting of parts, and minor subassemblies.

In the browning department, women apply a chemical treatment to all outer gun parts by dipping them in a **solution** which leaves a dark, dull finish. Parts are then wiped by them. Women are beginning to be employed in final gun assembly, with satisfactory results. They have recently started on cutter grinding in the tool room.

Shoulder-Rifle Production

Two-thirds of the workers on rifle production are women. The first group were trained in the plant. To-day girls go to the technical high schools for a three weeks' course under the Dominion-Provincial War Emergency Training Program. Two weeks are given over to learning the principal machine tools and one week to bench work. Thereafter, the women are assigned production jobs under section men and foremen. They begin with less exact machine operations and are advanced to more difficult work with experience.

The rifle parts are machined in several different departments by the line method of production. Such departments make the "receiver" or frame about which all other parts of the rifle - the barrel, the bolt and bolt head, sights, and trigger mechanism, other small component parts, including the bayonet, and the wood stock - are assembled. Metal parts are heat treated and browned before assembly.

Receiver Department.

Ninety percent of the workers on the rifle receiver are women. Twenty women work under one leadman who set up machines and make the try-out cuts. In general, the girl operators put the work into the machine, tighten it, turn on coolant, and set the machine to operating. They brush away metal scrap, make sure the machine is operating correctly, and when cut is finished they gage it. The machines operated by women are numerous types of millers and drills which gradually cut rough forgings into desired shapes and dimensions. From the first rough cutting of the receiver forging down to the final milling of .008 of an inch off stock, practically all such operations are done by women operators. Profiling, slotting, and grinding are women's operations. Girls inspect and file off burrs in each section and do some of the final factory testing.

Barrel Department.

Of 51 operations on the rifle barrel, 40 are done by women. Men inspect and straighten the barrel, operate the 12-spindle reamer for reaming bore (though girls operate a horizontal reamer), turn the major thread on breech end and groove on muzzle end, make the draw and lead laps, and finish the inside of the barrel. Women do the initial operations of facing, centering, and grinding rest spots, the rough exterior turning on lathes, and interior drilling of the barrel. They finish the bore, cut rifling grooves, chamber for cartridge belt on a chambering machine, and perform the final operations on the muzzle.

Bolt Department.

On the bolt women operate the automatic miller and rise and fall millers, rotary and hand millers, cylindrical and surface grinders, vertical and horizontal drillers. On the bolt head they do thread milling and spline milling, as well as hand milling and rotary milling. They use small engine lathes, slotters, drills, and surface grinders.

In trigger manufacture women operate automatic millers, do profiling, drilling, reaming, and use the pantograph. The leaf back-sight machining involves irregular contours and circular grooves. Women do broaching, spline milling, drilling and reaming, surface grinding, burring and filing, and inspection.

Small Component Parts Department.

Twenty-two parts are machined in 700 operations. Ninety percent of these are milling-machine operations performed chiefly by girls. Girls also operate hand-fed drills, surface grinders, profilers and automatic engine lathes. Lathe work on the bayonet is now done by men, but girls will be put on it.

Heat Treatment and Browning Department.

In this department men are responsible for the electric furnace heat treatment and rusting, sand blasting, and barrel buffing. Women do all the oil finishing. They braze the magazine with solder, do machine buffing on all parts but the barrel, do grinding and wire brushing, and polish the bolt, back sight, barrel, bayonet, and other parts.

Wood Shop.

Men predominate in this department, but one-fourth the workers are women. Women operate the routing and reaming machines, both of which are operated by a foot lever, the boring machine, and do inspection and the matching of wood parts.

Assembly Department.

All parts reach this department for assembly. In January one-half the assemblers were women, and women were expected to comprise three-fourths. They are on numerous subassemblies, most of which involve putting in pins and screwing, gimping, or other light-bench processes.

Tool Room.

Ten women were employed at grinding tools and cutters and were operating small turret lathes. Inspection of incoming stock and of tools also was done by women.

OCCUPATIONAL HAZARDS

In gun and rifle machine shops, as well as other machine shops, soluble oils forming a milky emulsion are used to cool cutting tools in some machines. Insoluble oils are used on other machines to make cutting easier and to save the cutting edges of tools. For example, on the anti-aircraft-gun barrel a 90-percent solution of lard oil is combined with a 10-percent kerosene solution, whereas on the rifle receiver a light emulsion is used. These oils circulate in the machine and are filtered to screen out the metal chips that are cut away from the object machined. The machine oil is changed frequently.

It has been found that women are more susceptible than men to oil dermatitis. Occasionally a woman is especially allergic to some oil mixture in which case she is transferred to other work. Other women find that the oil blocks the follicles of the skin, of hands, arms, and thighs. Folliculitis on the thighs is easily prevented by wearing impervious covering that prevents soiling of the clothes. One company was experimenting with the use of pure lanolin on hands. The girls rubbed this on their hands as a protective covering before beginning work. Clean wiping cloths also are regarded as important.

An added difficulty in machine-shop operations for women is that their hands frequently receive small cuts from handling sharp tools or from metal slivers. First aid is available in all plants and women are instructed to have any small cut attended to immediately.

Girls wear either coveralls or slacks. Head covering is compulsory. Seating was adequate in some shops; in others crowding in of new machines made it impracticable.

U. S. Department of Labor
WOMEN'S BUREAU
Washington

LIFTING -- STRAINS

Source: "Women in the Factory", Published by National Conservation Bureau, 1942.

Women should not attempt to lift heavy objects. However; the weight of the object lifted is not the only factor to be considered. Wrong lifting methods cause unnecessary strains which can be very painful. The suggestions listed below if followed, will enable you to lift moderate weights without undue strain:

1. Wipe oil or grease from your hands before attempting to lift and then firmly grasp the article which is to be lifted.

2. Lift with your mouth open. Don't hold your breath as that throws unnecessary strain on your diaphragm.

3. When lifting an object with another person, make sure you both lift at the same time and let the load down together. Don't drop it suddenly without warning the other person.

4. Be sure you have good footing before you attempt to move an object, then lift with a smooth even motion. Do not jerk on a load.

5. If in emergency you find it necessary to lift a heavy object, shift the load or your body until you are in a position to make a straight lift. Never lift while in an awkward position.

6. When lifting an object from the floor, keep your arms and back as straight as possible, bend your knees and lift with your legs.

7. When lifting from a bench, shelf or table, slide the material as close to your body as you can and after grasping it with your hands, keep your arms stiff and make the lift by bending your body backward. The weight of your body will act as a counter-balance.

WORKERS' HEALTH AND THE 24-HOUR SCHEDULE*

Statement by Surgeon-General Parran

Surgeon General Thomas Parran, of the United States Public Health Service, recently issued the following statement with especial regard to the number of industrial establishments operating on a 24-hour-a-day schedule.

"As in the first World War American industry is faced with the problem of 24-hour-day, 7-day-week operation. Fatigue is a health hazard and a hazard to continuous production. The addition of second and third shifts to plant schedules necessitates the establishment of the rotating shift.

"To maintain workers' health and thereby peak production, industries operating on the 24-hour basis must take special precautionary measures to minimize the effects of night work and the rotating shift. The United States Public Health Service makes these recommendations:

"1. Workers changing over from day to night shift every 2 or 3 weeks find it difficult to adjust their eating and sleeping habits. In plants operating on a 24-hour schedule, shifts should not be rotated more often than every 2 or 3 months.

"2. Each nursing shift should rotate at the same time as the workers' shift, so that the same nurses will always be acquainted with the workers they are treating.

"3. Women with home responsibilities often try to do their housework during the day while working on night shifts. Chronic fatigue in short order is the result. In general, women workers who also have domestic duties should not be employed on the night shift.

"4. A 60-hour week--on a 10-hour day, 6-day week basis--may become necessary. Excessive increases in working hours lead to reduced efficiency during working hours, absenteeism and sickness. A 48-hour week--on an 8-hour day, 6-day week basis--is preferable. Individual workers should have one day in every 7 days reserved for rest and recreation; this does not preclude continuous operation of the factory.

*From INDUSTRIAL HYGIENE, Vol. 2, No. 1, Jan. 1942.

"5. Organized rest periods help maintain production at a high level. Five to fifteen-minute rest periods should be provided at the end of the first quarter, and again at the three-quarter mark of each shift. This is especially important in repetitive monotonous work or heavy manual labor. Milk, soft drinks, sandwiches and candy should be available during the rest periods.

"6. A particularly high standard of lighting is necessary in plants operating at night or under blackout conditions. Proper lighting reduces fatigue, improves morale, and prevents accidents due to poor light or glare.

"This six-point program should be based on the broader industrial hygiene service advocated by the United States Public Health Service which includes:

"Medical and nursing services available to workers on each shift; good plant housekeeping; adequate sanitary facilities; adequate ventilation; control of exposures to hazardous operations or to noxious dust, fumes and gases; proper placement of workers in jobs for which they are physically and temperamentally suited; reduction of excessive noise (a well-known producer); health and safety education programs, such as teaching proper posture on the job, sanitation, nutrition and mental hygiene; paid vacations of at least one or two weeks a year."

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

Excerps from "Health Problems of Women in Industry," presented by Dr. C. O. Sappington, Industrial Health Consultant, Chicago, Ill., presented at the eighth annual meeting of Industrial Hygiene Foundation held at Mellon Institute, Pittsburgh, Nov. 11, 1943.

* * * * *** * *

During the spring and summer 54 plants were visited with a total population of 452,000 persons of which 131,000 were women. . . The establishments were located in 14 industrially developed areas, in 10 different states, in the east, southeast and midwest. The selection of the different types of manufacturing was as variable as possible under wartime conditions, including aircraft, tanks, munitions, small arms, machine guns, small and large electrical devices, radio, communication apparatus, steel and other heavy industries, ships, chemicals.

* * * * * * *

Dysmenorrhea--Most of the plants included in this survey found that dysmenorrhea was not a significant problem--in fact, the majority of plants kept no figures on the incidence of this physiological disturbance.

* * * * * * *

Married women with young children--This type of employee offered the most frequent and most difficult problem occurring in this survey. The chief loss of time by women employees, as far as could be determined, was caused by their inability to carry the tremendous load of doing two jobs at the same time - one at home and the other in the factory. Complaints of employees, supervisors, management, physicians, and all types of personnel, were numerous from this cause and the problem was common to most plants visited. It appeared also to be the chief reason for frank fatigue in women employees, because of lack of proper rest and recreation.

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GENERAL MOTORS CORPORATION
DETROIT, MICHIGAN

June 29, 1943

WOMEN'S BUREAU
JUL 1 - 1943
DEPARTMENT OF LABOR

Mrs. Margaret T. Mettert
Women's Bureau
Research Division
U. S. Department of Labor
Washington, D. C.

Dear Mrs. Mettert:

A few days ago I wrote to Miss Anderson about an article on the work of the Women's Bureau in relation to the health of the women war workers for inclusion in the Medical History of the War of 1941 -- and Miss Anderson writes me that you will prepare this. May I express my personal appreciation.

This history is being prepared by the Subcommittee on Historical Records, Division of Medical Sciences, National Research Council, and one volume has been assigned to industrial medicine. A prospectus of this volume in outline form is being attached.

Of course it will not be necessary to send in the material until the war is over, but I suggest that it be accumulated concurrently.

If you have any suggestions as to the arrangement of the prospectus or as to any activities which are not included, I will appreciate hearing of them.

Very truly yours,

C. D. Selby

C. D. Selby, M.D.

GENERAL MOTORS CORPORATION
DETROIT, MICHIGAN

June 28, 1943

WOMEN'S BUREAU
JUN 30 1943
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Thank you for your prompt response to my recent request for an article on the work of the Women's Bureau in relation to the health of women workers for inclusion in the proposed Medical History of the War of 1941 --. I note that Mrs. Margaret T. Mettert of your Research Division will prepare this and I am taking the liberty of writing directly to her.

Very truly yours,

C. D. Selby

C. D. Selby, M. D.

June 25, 1943

Dr. C. D. Selby
General Motors Corporation
3044 West Grand Boulevard
Detroit, 2, Michigan

Dear Dr. Selby:

I shall be glad to have information on the work of the Women's Bureau in relation to the health of women workers included in your Volumenon Industrial Medicine. I am asking Mrs. Margaret T. Mettert, of our Research Division, who is in close touch with this subject to take care of this for you.

Sincerely yours,

Mary Anderson, Director

MEP:ml

GENERAL MOTORS CORPORATION
DETROIT, 2 MICHIGAN

June 23, 1943

WOMEN'S BUREAU
JUN 25 1943
DEPARTMENT OF LABOR

Miss Mary Anderson, Chief
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Under the auspices of the Committee on Medical Records of the National Research Council, the medical history of the war of 1941-- is being written. I have been asked to get together the material for the "Volume on Industrial Medicine" and I feel quite sure that it would not be complete without some statement from you on the activities of the women's bureau in relation to the health of women workers.

Will you be so gracious as to undertake this responsibility, assigning it to one of your bureau if necessary or preparing it yourself if you think it best. Naturally, the manuscript does not need to be sent to me until the war is over.

With best regards,

Very truly yours,

C. D. Selby

C. D. Selby, M.D.

June 1943.

MVR
your copy

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

THE WORK OF WOMEN ON PNEUMATIC TOOLS

The Employment of Women

Reports from various parts of the country show women employed in increasing numbers on a variety of pneumatic tools -- chipping hammers, air grinders, light rivet guns, weld-cleaning guns, pneumatic hammers, pneumatic drills, scaling gun, and sanders. These very in weight from very light, small tools to tools weighing up to 18 lbs. A number of shipyards still exclude women from any operation of pneumatic tools on the basis that this is not desirable work for women.

Recommended Conditions for the Employment of Women

The problem of safeguards for the woman operator's health was brought to the attention of a number of industrial hygienists. Their recommendations will be useful to employers who now have or are contemplating, using women on these jobs.[1]

Their recommendations follow:

1. Women with the following characteristics are best suited for work of this kind:
    a. Women above average in stature and muscular development.
    b. The phlegmatic, hypothyroid type.
    c. Women who have not had repeated pregnancies, abdominal operations, or large pendulous breasts.
    d. History of normal menstrual periods.
2. Women with a history or clinical diagnosis of pelvis disorder, especially pelvic congestion should not use vibratory equipment even of the rotary type.

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[1] Those consulted include Dr. Alice Hamilton, Medical Advisor to the U. S. Department of Labor; Dr. Leonard Greenburg, Executive Director, N. Y. Division of Industrial Hygiene; Dr. M. H. Kronenberg, Chief, Illinois Division of Industrial Hygiene; Dr. Philip Drinker, Chief Health Consultant, U. S. Maritime Commission; and the Council on Industrial Health, American Medical Association.

3. Pneumatic apparatus should not be used by pregnant women.
4. Adjustment should be made in size and weight of tools for use by women. Women should not use heavy pneumatic equipment.
5. A sitting posture is preferable over upright positions.
6. If standing is necessary, rest periods in the prone or knee-chest position are recommended.
7. On periodic examination, women showing vasomotor disturbances, nervous or arthritic changes, should be transferred to other work.
8. Consideration should be given to change of job from time to time.
9. Counterbalancing, suspending, or propping tools should be done wherever possible to relieve operator of weight and vibration.
10. Women should not brace tools such as rivet guns against the chest. Women are subject to development of cancer in the pectoral region and it is believed that following such practice might aggravate this tendency.
11. If the work involves production of silica-containing dusts it should be remembered that women under 35 are especially susceptible to tuberculosis. (Preferable, dust should be completely controlled for all workers.)

Pathology Resulting from Pneumatic-Tool Operation

A brief resume' of the possible effects of use of pneumatic tools will indicate the reasons for careful protection of these operators. The International Labour Office made a detailed survey in 1938. The following paragraphs are based on this material. 2/

Pathological conditions resulting from the use of pneumatic tools are chiefly vascular disturbances and injuries to the joints. Also of importance are the effects of noise on hardness of hearing and the effects of dust if it is produced by the operation. The effects of noise and vibration on the nervous system are less well known but may be equally serious.

2/ International Labour Office, Supplement to Occupation and Health Section on Pneumatic Tools. Geneva, 1938.

The common vascular disturbance is a local anemia of the hand supporting the tool in a right handed person, the left hand is affected. The hand affected is stiff and awkward and unfit for work. Frequently only the fingers or finger tips are affected. At the end of an attack, the fingers suffer from a burning sensation. The condition, known as "dead fingers", is attributed to the shock and vibration of the pneumatic tool acting on the blood vessels and on the nerve trunks. The way the tool is held is important, since a rigid position of the fingers has been found a principal cause of this type of injury. Such disturbances are of widespread occurrence and are most frequent amomg workers in a low temperature. They are also most likely to affect workers who have not yet acquired skill in manipulating tools.

Injuries to the joints are less common but tend to be much more serious, frequently permanent in character. Injuries described include necrosis, chondromatosis, arthritis, osteochondritis, and bone cysts.

The intensity of the symptoms in any particular case depend upon (1) the manner in which the tool is held, (2) the weight of the tool, (3) the nature of the work (intermittent or continuous, lasting during the whole work period or only part of it), (4) hardness of material worked, and (5) the posture of the individual. Indications are that some individuals are especially susceptible to lesions of the joints and may be affected after a few months while others can work for years without such symptons.

Injuries to the elbow and especially to the arm holding the tool are most frequent. It is believed that this is accounted for by the repeated shocks directly transmitted to this joint from the tool. Injuries to the elbow are manifested by marked reduction of flexion with less marked reduction of extension. Pronation and supination usually remain unaffected. When the pneumatic tool is held in an unnatural position, other locations of injury are found. Support of the tool on the thigh has been known to result in serious arthritis deformans of the hip. A work who placed the pneumatic hammer against his chest and applied his whole weight to it, died of sarcoma of the sternum. The origin of the disease was not ascertained, however.

Prevention of Pathological Symptoms

Reduction of hours at which the operator continues to use pneumatic tools is fundamental. Introduction of rest intervals is important.

Tools of small caliber which do not give rise to strong percussion are recommended. The escape of air should be provided for in front of the tool and not by the side of it; the air pressure should be as low as possible. Attempts should be made to supply supports for the tools, such as a counterbalance arranged for a pneumatic hammer used intermittently by girls in an airplane factory.

It is essential that the worker be taught the best method of holding and maintaining the tool in position.

Physical examination prior to employment should exclude from such work those with symptoms of arthritis. Annual examination should include X-ray, particularly of the elbow, to detect changes in bony structure.

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ADVANCE RELEASE

5-31

not circulated

Shoe

ADVANCE RELEASE: For MONDAY Morning Papers, May 31, 1943
Webb - 71311

OFFICE OF WAR INFORMATION
OFFICE OF PRICE ADMINISTRATION

OPA-T-960

Women's safety shoes, with plastic or fibre toe box, have been added to the types of safety shoes available through the issuance of supplemental ration stamps, under the same procedure that applies to men's steel toe shoes, the Office of Price Administration announced today.

Due to the increasing number of women in industrial plants, addition of plastic or fibre toe safety shoes was necessary since in the past women's safety shoes generally have not been made with the steel toe box. In adding these types of safety shoes, OPA pointed out that they were being included only until such time as women's steel toe safety shoes become available.

Special stamps for the purchase of these shoes can be acquired by women workers who have spent their own stamp 17, even though there are unspent stamps held by members of their families, if the worker needs this protection on her job. In plants authorized to handle safety shoe applications, workers will be able to obtain the special shoe stamps by application at the plants. Otherwise apply to the local ration boards either in person or by mail.

This addition is contained in Amendment No. 19, effective June 3, to Ration Order 17 (shoes).

TITLE 32 - NATIONAL DEFENSE
CHAPTER XI - OFFICE OF PRICE ADMINISTRATION
Part 1404 - Rationing of Footwear
[RATION ORDER 17[1] - AMENDMENT NO. 19]
SHOES

A rationale accompanying this amendment, issued simultaneously herewith, has been filed with the Division of the Federal Register.

Ration Order 17 is amended in the following respect:

1. The definition of safety shoes in Sec. 3.13 is amended by adding the following:

   "(6) plastic or fibre toe box for use in women's safety shoes only, if designed to furnish the same type of protection as a steel toe box."

This amendment shall become effective June 3, 1943.

(Pub. Law 671, 76th Cong. as amended by Pub. Laws 89, 421 and 507, 77th Cong.; W.P.B. Directive 1, 7 F.R. 562, Supplementary Directive 1-T, 8 F.R. 1727; E.O. 9125, 7 F.R. 2719)

Issued this 29th day of May, 1943.

George J. Burke
Acting Administrator

X-15982

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[1] 8 F.R. 1749, 2040, 2483, 2943, 3315, 3571, 3253, 4129, 3949, 4716, 5567, 5589, 5756, 6046

~~Labor Standards Division~~

Robinson

78TH CONGRESS
1ST SESSION

H. R. 2800

IN THE HOUSE OF REPRESENTATIVES

MAY 25, 1943

Mrs. NORTON introduced the following bill; which was referred to the Committee on Labor

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A BILL

To provide for cooperation with State agencies administering labor laws in establishing safe and healthful working conditions in industry.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of enabling the United States, through the Department of Labor, to cooperate with State agencies administering labor laws in establishing safe and healthful working conditions in industry, there is hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1944, the sum of $5,000,000 to be used as hereinafter provided. Such amount shall be allotted by the Secretary of Labor for use by cooperating State agencies administering labor laws on the basis of (1) the population; (2) the number of wage earners; (3) the special safety and health problems in industry; (4) the number of workers afforded protection by the State law and the cost of proper and efficient administration of such law; and (5) the financial needs of the respective States.

SEC. 2. Prior to the beginning of each year, the Secretary of Labor shall determine in accordance with rules and regulations previously prescribed by the Secretary of Labor after consultation with a conference of the State and Territorial authorities administering labor laws, the amount to be paid to each State from time to time from the allotment to such State and shall certify the amount so determined to the Secretary of the Treasury. Upon receipt of such certification, the Secretary of the Treasury shall, through the Division of Disbursement of the Treasury Department, and prior to audit or settlement of the General Accounting Office, pay in accordance with such certification.

SEC. 3. The moneys so paid to any State shall be expended solely in carrying out the purposes specified in section 1 and in accordance with rules and regulations prescribed by the Secretary and the plans jointly developed by the agency administering the labor laws of such State and the Division of Labor Standards and approved by the Secretary of Labor.

SEC. 4. There is hereby created within the Office of the

Secretary of the Department of Labor a commission to be known as the Industrial Safety Commission. The Industrial Safety Commission shall be appointed by the Secretary of Labor without regard to any other provisions of law regarding the appointment and compensation of employees of the United States. It shall consist of three members—one a representative of the public who shall be chairman; one a representative of employers; and one a representative of employees. The Secretary may appoint such advisory committees composed of representatives of employers, employees, and the public and such technical experts as may be deemed necessary to advise with the Commission in carrying out its duties.

SEC. 5. The Industrial Safety Commission is hereby authorized and directed (1) to recommend to the Secretary of Labor reasonable standards, methods, and procedures for establishing safe working conditions in industry with a view to encouraging more effective control of hazardous conditions by the several States.

SEC. 6. The Secretary of Labor is authorized to appoint, subject to the civil-service laws, such employees as he deems necessary to carry out his functions and duties under this Act and to service the Industrial Safety Commission in its functions and duties and shall fix their compensation in accordance with the provisions of the Classification Act of 1923, as amended.

SEC. 7. There is hereby authorized to be appropriated to the Secretary of Labor for the fiscal year ending June 30, 1944, the amount of $250,000 for all necessary expenses in administering the provisions of this Act.

SEC. 8. The Secretary of Labor shall include in his annual report to Congress a full account of the administration of this Act.

78TH CONGRESS
1ST SESSION

H. R. 2800

A BILL

To provide for cooperation with State agencies administering labor laws in establishing safe and healthful working conditions in industry.

By Mrs. NORTON

MAY 25, 1943
Referred to the Committee on Labor

U. S. Department of Labor
Women's Bureau
Washington

March 11, 1943

WOMEN'S WARTIME OCCUPATIONAL HAZARDS

I. Industrial Accidents Among Women

1. The wartime trend in women's accidents

2. Special accident hazards to women
   - (a) Women as inexperienced workers
   - (b) Work-clothing problems
   - (c) Adaptation of machines, benches, seating arrangements to women replacing men
   - (d) Handling materials
     - Maximum weights for lifting and carrying
     - Engineering the heavy work out of the job
     - Training the new worker in lifting and handling

II. Industrial Health Problems of Women

1. Increased exposure to harmful substances

2. Special war problems of control
   - (a) Present validity of standards extablished under peacetime conditions

3. Increased exposure to harmful conditions

4. Special problems of certain war occupations

Women's Wartime Occupational Hazards

I. INDUSTRIAL ACCIDENTS AMONG WOMEN

1. The wartime trend in women's accidents is upward. American and British figures show great increases in injuries to women.
   - a. Working-machine accidents to women in Illinois increased 65 percent in 1941 over 1940.
   - b. Wisconsin injury reports show increases from January to December 1942 of 90 percent. Accident increases were greater than employment increases.
   - c. Michigan reports of injuries disabling at least 8 days showed an 82 percent increase July to December 1942 as compared to January to June 1942.
   - d. British figures show rises of 90 percent in women's accident rates in 1941 over 1938.

2. There is need for more complete statistics on which to base prevention programs.
   - a. Most States do not compile injury data separately for women.
   - b. No State has a basis of woman employment or woman hours of work on which to find frequency rates.

3. Women war workers have special accident problems.
   - a. The assimilation of great numbers of women never before employed and great numbers who have shifted to new war jobs means a large body of inexperienced workers needing safety education.
     - (1) Education should be on a nonproduction basis so the speed factor will not increase hazards of the job.
   - b. Women's ordinary street clothing is not safe for factory work.
     - (1) Headwear should be worn by the machine operator, enclosing all the hair, and should be of sufficient height and stiffness not to catch in revolving parts. Hard hats should be provided if falling objects are a problem, e. g., shipyard work.
     - (2) Work garments should meet safety and comfort requirements of the job. Such requirements include: (a) Freedom of movement; (b) Simplicity of design - no frills, loose cuffs, belts, collars, ties, etc., to catch on moving parts; (c) Special features where the job requires it (tapered legs for climbing, lattice pockets for powder work); (d) Well-fitted garments.
     - (3) Work shoes.
       - (a) All should be low-heeled and well-fitting.
       - (b) For workers handling materials weighing over ½ pound a safe-toe shoe should be supplied.
       - (c) High shoes should be provided for heavy welding.
     - (4) Jewelry has no place in the factory.
     - (5) The method of presenting and enforcing clothing rules is important.
       - (a) Employees should have voice in choice of garments.
       - (b) Employees should understand purpose of rules.
       - (c) Leaders among girls may be chosen to try out new safety garments.

c. Adaptation of working environment to women is necessary.
  (1) Women's average height is 5 inches less than that of men.
  (2) Women's reach is less than men's.
  (3) Women's fingers and hands are smaller.
  (4) Constant standing is more difficult and harmful for women than men. Women are more susceptible to varicose veins.
  (5) Adjustments may include wooden platforms, lowering benches, installing adjustable seats, changing position of machine controls, adding guards to machinery.

d. Handling material may have special hazards for women.
  (1) Women cannot lift so much as men.
    (a)Women average about half the muscular strength of men.
    (b)Experience shows that the average woman should not lift continuously over 25 pounds (10 lifts or more per hour). (Employment for heavy work should be on the basis of careful physical examination.)
    (c) Heavy lifting and carrying should be done by machine power.
    (d) Women should be taught safe methods of lifting.

II. INDUSTRIAL HEALTH PROBLEMS OF WOMEN

1. Studies show increased exposure of women to harmful substances such as lead and its compounds benzol and other solvents, mercury, radium, carbon monoxide, TNT, and to dermatitis producers such as tetryl, fulminate of mercury, cutting oils and compounds.
   a. Medical and engineering methods of control should be fully used to prevent occupational disease. Such methods may include periodic physical examination; exhaustion of dusts and fumes from the air, with periodic tests to keep concentration below safe limits; provision of personal protective equipment as required; provision of suitable washing and bathing facilities, and so forth.

2. War industry has brought increased exposures to harmful conditions,
   a. Women are working under conditions of extreme heat and extreme cold. Special attention should be given to (1) clothing for the work; (2) prevention of exhaustion by such means as special rest periods, special nourishment, special medical care.
   b. Women do much fine work, such as fine inspection, that may cause eyestrain. Special attention to lighting, the provision of magnifying glass to work under, preemployment eye examination, aid in preventing eyestrain.

3. The war has brought special problems of control. The following are examples:
   a. Restrictions on the use of tim have caused an increase in the amount of lead in solder. A higher temperature is required. No appreciable lead hazard was present under the old system; now girls soldering should have full protection against the respiration of lead fumes.

b. Subcontracting radium painting in small shops in many States is making difficult supervision and enforcement of safety rules for this dangerous occupation.

c. Dermatitis causes a high percentage of women's disabilities due to occupational exposure. Oil dermatitis is a particular problem with the increase in women on machine tools. The use of oil containing chlorine compounds has caused a particularly serious chloracne that may permanently disfigure and have serious systemic results as well.

   (1) Facilities for personal cleanliness are of prime inportance in prevention. Protective clothing and protective ointments may also be useful.

4. Wartime conditions make it questionable whether fume and dust concentrations in the air considered safe in peacetime continue to be safe limits.

   a. War factors lowering resistance to occupational disease include:
      (1) Increased hours
      (2) Short lunch periods
      (3) Pressure for production
      (4) Overcrowding
      (5) Makeshift washing facilities
      (6) Too little time for washing
      (7) Other fatigue factors, such as lack of correct seating, and so forth.

5. Expansion of women's employment in certain jobs raises special problems. For example

   a. X-ray operation: The increasing use of the X-ray industry to detect flaws makes it important that correct personal protective equipment be provided operators and that machines be sufficiently guarded.

   b. Radium dial painting: Specific and detailed standards have been established to prevent absorption of harmful rays by operators. These include special storage facilities, good housekeeping, glass shields, over work, individual exhausts, special washing facilities, careful selection and training of workers and periodic examination of workers.

   c. Welding:

      (1) Danger of burns makes essential special consideration of clothing and personal protection adapted to women.

      (2) Protection from fumes is essential. For example, welding or cutting metal painted with lead paint exposes the welder to lead. Coatings on rods may include silicon dioxide, aluminum oxide, titanium dioxide, calcium, magnesium and sodium oxide, iron, manganese, calcium fluoride, and carbon dioxide. Little information is available on the toxicity of these coatings when volatilized. Oxy-acetylene torches may generate nitrous fumes. Welding on stainless steel is particularly dangerous.

      (3) Widespread belief that exposure to arc welding may have harmful effects on the reproductive organs, even causing sterility, seems to be without basis. Unless exposure includes lead or other heavy metal no effect should be anticipated. The Women's Bureau has information on this subject from a number of industrial hygienists.

      (4) Adequately protected grinding occupations are no more harmful to women than to men.

      (5) Operation of pneumatic tools. Some special consideration should be given to the effect on women of constant jarring and terrific noise involved in operating pneumatic chippers, riveters, etc.

Fitzgerald - Labor 24

OFFICE OF WAR INFORMATION
DEPARTMENT OF LABOR

For Immediate Release
Monday, January 25, 1943

OWI-1150

Wear safety caps when the job requires it, the United States Women's Bureau advises women war workers. Hair should be fully tucked under the cap, and so avoid scalping and other injuries as well as pain, costly medical care, permanent disfigurement.

This advice to women in war plants is given by Mary Anderson, Director of The Women's Bureau, United States Department of Labor, in a recent bulletin, the ninth in a series of pamphlets on standards for employment of women in war industries. It offers the following suggestions:

The feminine hairdo and machinery are a bad combination, if stray curls or wisps of hair are caught in moving parts. For machine operators the uncovered head should be taboo, also the popular bandana and turban as their loose ends may catch in the machine. A hairnet alone is not safe, but may help if worn under a good cap.

The formula for a safe cap calls for height, stiffness, and generous head size. Height warns the girl when her head gets dangerously near machinery. Stiffness prevents the material from catching in the machine. The hat with a generous head size will be thrown off it it strikes a machine part.

Electric and acetylene welders should wear fire-proof hair covering to prevent serious burns.

Women exposed to dust or fumes need covering to protect the hair and to prevent its carrying toxic material. For this purpose, when there is no machine danger, a closely woven washable turban is good.

Workers exposed to oil or grease also need to protect the hair and thereby aid in preventing skin infections.

Half the enforcement battle is won if caps are comfortable, attractive, and introduced by persuasion rather than compulsion.

Vigilance must not be relaxed, the bulletin warns. Due to negligence, the following typical accidents occurred to women in war plants:

An operator of a spinning frame in banding over the machine had her hair caught. As a result of her injury she was totally disabled for 16 weeks, and partially disabled for 45 weeks longer. The injury cost was $570 in compensation.

In an ordnance plant a woman operating a barrel-turning machine leaned too close and her hair was pulled around the barrel. A large clump of hair was torn from her head. She spent days in the hospital recovering from the wound and shock.

The bulletin can be obtained by writing to the Women's Bureau, United States Department of Labor, and giving reasons for its need, or can be purchased for five cents from the Superintendent of Documents, Washington, D. C.

X-9179

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Mohr

DATE: December 28, 1944

FROM : Isabel Schafer

SUBJECT:

Miss Miller would like you to sit in on a conference with Dr. Leonard Greenburg, on Thursday, January 4, at 10:00 a.m., in her office. Dr. Greenburg is coming to consult with Miss Miller and Miss Angus concerning the labor laws bulletin.

gm

Miss Miller December 13, 1944

Jennie Mohr

Committee of State Labor Commissioners and Labor Representatives on Safety and Health and Workmen's Compensation.

I attended the conference on the afternoon of December 12th. In the absence of Mr. Gibson of the CIO, Mr. Bob Watt presided and Mr. Zimmer led much of the discussion. The following is a summary of the points which were discussed and on which agreement was reached concerning recommendations to be made at the conference.

1. It was agreed that the Committee would recommend complete coverage of occupational diseases.

2. The desirability of elective versus compulsory compensation laws was discussed and the Committee agreed that such laws should be compulsory.

3. Numerical exemptions should be removed, so that employees working in small plants should be covered.

4. Second injury funds were discussed and it was generally agreed that the existence of compulsory law would not necessarily destroy the adequacy of second injury funds. Mr. Zimmer pointed out that second injuries have proved not to be an undue drag on the funds.

5. There was a good deal of discussion about the need to remove the discrepancy between wages and benefits which has been growing in the past 20 years. Mr. Watt raised the question of why any maximum should be set and Mr. Zimmer said there was some advantage in a top limit because of difficulty in determining exact earnings. Mr. Watt also raised the issue of the large discrepancy between premiums paid and compensation received. It was finally agreed to recommend benefits amounting to two-thirds of wage at time of injury, without maximum limit. It was suggested also that a minimum be specified.

6. Agreement settlements were discussed. As they now stand in many States they are vastly inimical to the interests of the workers. It was agreed they should be strictly supervised, and considered null and void if not approved by the administrative body. It was recommended that a study be made of agreement settlements and particularly of the control of fees, both legal and medical. The question of objective medical opinion in cases involving agreement settlements was discussed.

7. It was recommended that a limit should be placed on the time lag allowed for payments with penalty for failure to observe this limit.

8. The relative efficiency of State and private funds was discussed, and it was agreed that the Committee should recommend exclusive State funds, with permission to pay administrative costs out of the income. This latter clause was presented for the purpose of obviating the difficulty of getting adequate funds for adequate staff.

9. The general problem of medical care, limits in time and in costs, was discussed but no final recommendation arrived at. There was a good deal of discussion about the necessity for enough well-trained State doctors to make certain that fair and objective medical care would be available

10. The importance of taking an active interest in safety and health problems was emphasized. Mr. Watt pointed out that the job should be done at the plant level but that the initiative should be taken by ~~the~~ National agencies. Mr. Zimmer quoted Mr. Gibson as saying that the States have the responsibility to get laws established covering work conditions, and that code-making authority is essential. Labor should be included in code making as well as the public and industry. Mr. Watt suggested specific recommendations such as establishing a National Safety and Health Committee in the Labor Department, representing both labor and industry, and the establishment of State and local committees where union agreements make it possible for employer and employee to work on such committees in local units. Mr. Dean, of Michigan, mentioned the difficulty of getting labor-management committees working together. He believed that there should be in State Labor Departments safety organizations comparable to the industrial hygiene developments in health departments to work in cooperation with the health departments.

Mr. Zimmer said that education for health and safety is the function of the factory inspector, and that 80 percent of the safety program is up to management, though the workers must cooperate. Mr. Watt pointed out that we wouldn't get far unless labor leadership itself takes the responsibility for pressing accident prevention, and that up to now a good job on safety and health has not been done. He pointed out that this was a field in which there is a better chance for agreement between industry and labor than many other fields.

A labor representative from Illinois said we should recommend that a State's Department of Hygiene should be connected with the Department of Labor in the State. Mr. Zimmer said that on this there was unequivocal agreement.

Mr. Zimmer said the Committee should recommend that labor people take advantage of classes in industrial safety which are available through the Department of Labor and which would prepare them to participate in code-making and safety inspection. The question of the strength of Federal legislation was brought up and it was pointed out by Mr. Zimmer that the United States Department of Labor acted in an advisory not an enforcement capacity and that enforcement lay with the States.

The Norton Bill for enabling the Federal Department of Labor to give grants-in- ~~and~~ aid to strengthen State Labor Department programs on safety and health was discussed, and the difficulties of labor and ~~the~~ Labor Departments in obtaining help from ~~the~~ Public Health Departments were mentioned. The

Bill coming up for consideration which would give the National Safety Council Federal recognition as a safety agency was discussed and it was agreed that this was highly undesirable. It was finally agreed that on the basis of this discussion Mr. Zimmer would draft recommendations for the conference.

JM/ml

JM

Miss Miller December 12, 1944

Jennie Mohr

Health Records Study

I called on Dr. William Reindollar, of the Maryland State Department of Health, in Baltimore yesterday and had a brief talk with him about the Bendix plant at Towson and its possibilities for my study. He was interested but not too hopeful that Bendix would be a good place to go. However, I did go there, spent most of the day, and found Mr. R.C. Smyth, the industrial relations director, extremely cooperative and interested. I went over the problem of using the medical records, and examined their methods of record keeping for both medical and personnel information. We discussed only the Towson plant of Bendix, and I think if I do take it I should limit myself to this plant for the initial study. Other subsidiary plants in Baltimore have fewer women and less complete records, Mr. Smyth says, though I could examine them later if I wish.

There are about 1,200 women in a number of departments, and Mr. Smyth said that he believes about 80 percent of these women will have been employed constantly for the 6-month period from June to November 1944, which is the period I should like to study. He is now getting for me the actual number of women in the departments who have been employed over this period, and will let me know in a couple of days.

I talked to the senior nurse, who is responsible for keeping the records, and believe that it would be a fairly simple job to get them copied. Most of the information is in code, which would make copying very easy, but would leave the job of decoding to be done here in my office. When I get the actual number of women employed over the required period and check to see how many of them have dispensary records, I can then estimate the actual amount of clerical work to be done in obtaining the records.

Since Mr. Smyth offered without my asking to obtain the number of women for this period I said I would be glad to have it. There are, however, two questions in my mind about the advisability of using this plant. One is that the jobs involved are relatively routine and simple. The departments are mainly:

Inspection
Testing
Assembly
Machine riveting
Masking.

The assembly jobs involve soldering, machine riveting involves vibration, testing involves exposures to electrical and x-rays, and masking involves exposures to conditions of spray painting, Though the girls don't actually do the painting themselves. A number of the various jobs involve weight lifting, and a few involve exposures to solvents of various types. Since this plant is interested, has a large number of women, and I think would be relatively accessible, it may be a good one to start on, in spite of the fairly limited variety of exposures.

A second question in my mind rises from the fact that the keeping of records is entirely in the hands of the senior nurse, under the supervision of the industrial relations director, and the doctor who is there only one hour a day has nothing to do with them. I don't know whether this would cast any doubt on the desirability of the records. The senior nurse appeared to me to be an extremely competent person, and the plan for record keeping is closely supervised. Mr. Smyth told me that Dr. Cross, the physician, instructs the nurses professionally but had no jurisdiction over the records and in fact both he and the senior nurse report independently directly to the industrial relations director.

I am to communicate with Mr. Smyth after he sends me the information on number of women, and decide on next steps. Would it be possible to talk to you briefly about this within the next few days?

JM/ml

JM

Miss Miller December 12, 1944

Jennie Mohr

Visit to Campbell Soup Company, Camden, New Jersey, December 8th.

This visit is the last of a series I have made with members of the staff of the New Jersey State Department of Health, Division of Industrial Health. Mr. Hazard, Head of this Division, was to have gone this trip but unexpected circumstances at home prevented his coming. I made the trip with Dr. Marie A. Sena and Mr. Schall, an engineer of the Division.

We were taken through the plant by Mr. John Bonnel. He was safety engineer when Mrs. Sater went through last year, but is now Assistant Personnel Manager. Many of the operations to be observed during the summer were not being done. Women were engaged mainly in preparation of chicken soup and vegetable and beef soup. We went through only one plant, which took most of the day, and did not visit the plant in which Army rations are being prepared.

On the whole the conditions were good in the plant, and very much as indicated in Mrs. Sater's earlier report. I was much impressed by the terrific speed with which everybody was working. There is a bonus system in the plant which appears to result in considerable pressure, although I don't know to what extent the management itself is responsible. The plant has no recognized rest periods, though in view of the speed of work I should think they would be particularly desirable.

We found most of the conditions that might make for industrial hazards pretty well taken care of. Details of these findings will appear in the report of the New Jersey Industrial Hygiene Division. The following comments I think should be made about our visit:

1. When we approached the lines handling chickens Mr. Bonnel apologized for having a large number of Negro women working here. He said that "We never had them before and won't again; I hope you will discount it." I asked what the objection was to having Negro women working on the chickens and he said that people wouldn't buy the food if they knew. Apparently the plant is planning to fire these women as soon as they can, though at present many Negroes are on practically all the jobs we saw.

2. The New Jersey Public Health Department is apparently reluctant to be very active on this industrial hygiene program for the foods industries. Dr. Sena said that Mr. Hazard refuses to send any recommendations to the plants we have visited, though eventually the ~~thing~~ findings will be written up in general terms in some trade publication. I asked why he was reluctant and she said he would not commit himself about the individual plants. This in spite of the fact that the plants have asked for recommendations resulting from our visit.

I had a long talk with Dr. Sena and Mr. Schall about the necessity of following up on this, and Mr. Schall said that he would try to get Mr. Hazard to take action. It appears to me the Industrial Hygiene Division in New Jersey is very hesitant about saying anything that would displease anybody. I think that outside pressure would need to be brought to get them to act on results of their investigations of both canneries and migrant quarters. We have in the records of our visits enough information to form the basis of a positive program for eliminating hazardous conditions, but how active Mr. Hazard will be in developing his program I hesitate to say. Mr. Schall was very much aware of the lack of enforcing power in the Health Department, and of the conflicts both between Labor and Health, and between the various divisions within the Health Department.

JM/ml

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Mohr

DATE: Dec. 12, 1944

FROM : Miss Miller

SUBJECT: West Virginia Statewide Safety Conference

Let me know about Mr. Easley's reply. I agree there is no point to going if he has no positive program.. We can decide in terms of what he says.

Miss Miller December 7, 1944

Jennie Mohr

West Virginia Statewide Safety Conference

I have received a letter from Mr. Easley, of the West Virginia State Safety Council, asking me to talk next March at their Statewide conference. This is the conference at which I talked last March.

I am uncertain whether it would be worthwhile going back to West Virginia. Last year was the first time any attempt was made to develop interest in women workers, and I think encouragement of Mr. Easley is desirable. But I do not think he has done anything about it in the meantime,, and certainly the intervening regional conferences to which I went were not startingly effective.

I wrote to Mr. Easley and said that I did not yet know whether I could come, not having discussed it with you. I asked him what plans he was making for women's participation in the State conference and suggested that if the program for women was to be effective it would have to involve more participation locally and more participation by women. I do want to help him out but I don't think he is doing a very effective job and I am not sure how valuable it is either for the Women's Bureau or the women workers.

I should appreciate your opinion on the matter.

JM/ml

Miss Miller December 7, 1944

Jennie Mohr

Medical Health Records Study

Yesterday I called on Dr. Mcdonald of the Baltimore City Health Department, and received much useful information about the medical records of certain plants in Baltimore which I have been considering for my study. He gave me information on medical set-up, kind of operation, sizes and conditions of plants, and likelihood of cooperation.

After talking to him I went to one of the plants, the American Hammered Piston Ring Company. Dr. Mcdonald had told me that they had good workmen's compensation records but he didn't know whether they kept medical records. He thought that if they did the records would probably be very good. However, I discovered that they have no plant physician and no systematic records of illnesses.

There are three other plants in the vicinity of Baltimore which are worth following up: Bendix, Fairchild Aviation, and Crown Cork and Seal Company. I am planning to go back to Baltimore next Monday to visit the Bendix plant at Towson (where Miss Manning recently took some visitors). I am also going to talk to Dr. William Rheindollar, of the State Department of Health, who will give me information on the medical set-up of both Bendix and Fairchild. I was unable to see him yesterday.

The Crown Cork and Seal Company will probably be a very good plant to consider. Dr. Mcdonald says he knows they have good records and are cooperative, and they have a large number of women on a large variety of jobs. However, Dr. Mcdonald said that his Department is in the midst of a chest x-ray program there, and asked if I would wait until the end of the month, when the program will be completed, before going into the plant, as there is some confusion there now. I said I would wait.

JM/ml

JM

Miss Miller November 20, 1944

Jennie Mohr

Annual Conference of Industrial Hygiene Foundation, Pittsburgh, November 15-16, 1944

This Conference put more emphasis than usual on general problems and policies related to industrial hygiene, and less on specific technical papers. The following are what I consider the most significant talks of the Conference.

1. Use of Disabled Veterans and Seniority Rights of Women. Most of the discussion on this subject dealt with the problem of putting the disabled veteran back to work in terms of his physical disability. The question came up, however, of the necessity of facing problems of seniority when cutbacks occurred. Mr. Hendrix, , Personnel Director of Eastern Aircraft Division, pointed out the fact that in his plant recently a considerable cutback necessitated laying off workers, and they let off disabled veterans who had only recently been employed, and kept women with seniority. This situation aroused a good deal of criticism from the veterans in the plant, apparently, and also aroused some criticism from the audience at the Conference. He stated that although his company gave the veterans all possible consideration under the law, they were maintaining the principle of seniority.

Mention should be made here of Dr. Krieger's (Ford Motor Company) description of the Ford Motor Company's "Camp Legion" for veterans who are physically disabled, where they are retrained for industry, farm work, and work as automobile mechanics.

2. Pre-placement and Periodical Physical Examinations came in for a good deal of discussion. Dr. Peterson of the American Medical Association talked about the necessity for establishing specific physical examination procedures that would be acceptable both to management and to labor. He discussed the reasons why labor has been unwilling to accept physical examinations. He pointed out that a statement of criteria and procedures for such physical examinations was developed and has been ratified by the American Medical Association, the U. S. Chamber of Commerce, the CIO and the AFL. This statement indicates how much and what kind of information should be presented to employers and to workers, and how it should be used. This statement is now being followed ~~up~~ by an attempt to correlate the details of physical examinations with job requirements as indicated by the Occupational Analysis Division of War Manpower Commission.

3. There was a good deal of discussion about compensation for partial disability from silicosis. My impression after hearing ~~from~~ Dr. Wright of The Saranac Laboratory and Mr. Waters, chairman of the Foundation's Legal Committee, is that the medical profession considers partial disability from silicosis ~~possibly~~ impossible to evaluate and therefore tends to deny the validity of giving compensation for it. For example, Dr. Wright said

"We are in no position to fairly administer the partial disability law or to fairly describe any condition as due to silicosis." The difficulty of determining the amount of disability and the extent to which silicosis is the cause seem to overbalance most of the reasons for giving compensation. This, in spite of the fact that many States do grant compensation for partial disability due to silicosis.

4. Current legal developments concerning industrial health were discussed by Mr. Vandiver Brown of Johns-Manville. He mentioned the two outstanding Bills relating to the U.S. Labor Department and U.S. Public Health Service for industrial hygiene, the Norton Bill and the Miller Bill. His position was that it was inadvisable to set up the organizations suggested by the Norton Bill, as he felt it would duplicate in the Labor Department work already being done by Public Health.

5. One of the most interesting sections of the Conference was the discussion on medical health plans. The two major speakers were Mr. Andrew Court of General Motors and Dr. Sinai, Professor of Public Health, University of Michigan. Mr. Court showed some ~~pretty fancy~~ charts apparently proving that nobody needed any group medical service because everybody was in pretty good health. I was interested to see that his emphasis was entirely on higher income brackets, and felt that he offered a rather clear example of how statistics can be misused to prove a preconceived idea. He also said that when workers had an opportunity to stay at home for minor illnesses, this care of their health did not decrease the incidence of long-term illnesses. He said that food and housing were much more important than medical care for low-income families, under $1200 a year.

Dr. Sinai said that we could expect a great increase in health plans and group health organizations of all kinds over the country. This increase represented a not-to-be-denied demand on the part of the public, but ~~that~~ "it is an expansion that runs counter to all reason." According to him it is an inviolate principle that there should be no incentive to collect on any policyl But this incentive does arise when group hospital plans are available, and people will be more likely to go to the hospital when they are ill and have their illness covered by the insurance, than to stay at home and pay a doctor. Moreover, he said, if health policies are inevitable, they should begin as industrial and business health plans, rather than public.

6. Two more specifically technical papers were:

(a) Protection of Workers Against Noise. Hallowell Davis, Harvard Medical School. Dr. Davis did not add anything new to what has been given in other discussions, except to emphasize that a lot of noises that are disagreeable do not impair the ear; we should remember that impairment of hearing is frequently a normal characteristic of increasing age; that there is no need to be concerned about noises under 100 decibles (the noise of the New York subway) except for especially sensitive people; that "we are likely to open ourselves to unwarranted claims for hearing loss" and we could well ignore the loss of high tones "that are not of much use to us." He described various types of ear stoppers, ear wardens, ear defeners that could be put into the ear to keep out the noise.

(b) Dr. L. E. Himler of the University of Michigan gave an excellent talk on the use of psychiatry in industry, the best discussion of this subject that I have heard. He pointed out how people who are not themselves psychiatrists could do a great deal by an understanding of some of the attitudes of psychiatry, and suggested that we should "not try to adjust the man until he has had a chance to adjust himself."

7. The last paper was an excellent discussion by Mr. V. P. Ahearn, Industry Member of the National War Labor Board, who pointed out various industrial health factors that are entering into War Labor Board cases. He had an extremely open and objective attitude toward the necessity of dealing not only with these problems, but also with the attitude of labor toward them. This was the only point in the whole Conference at which the interest of the worker himself in his industrial health problems was considered.

JM/ml

STANDARD FORM NO. 64

Office Memorandum • [illegible] STATES GOVERNMENT

WOMEN'S BUREAU.
NOV 9 1944
DEPARTMENT OF LABOR

TO : Miss Frieda Miller, Director DATE: November 7,1944

FROM : Martha Ziegler M. Z.

SUBJECT:

Attention Miss Jennie Mohr

I note in the new issue of the Illinois Labor Bulletin that Part One of the Annual Report on industrial accidents in Illinois for 1943, which gives the status on reported cases, is now available for distribution. I have ordered a copy for the Chicago office but presume that the Washington office is already on the mailing list for this publication. Miss Espenshade of the Illinois Department said that she would check the mailing list to see whether the Women's Bureau is on it. If, however, you do not receive this publication within a short time, it might be well to write for it.

we have it

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Mohr

DATE: October 30, 1944

FROM : Miss Miller

SUBJECT:

Private and Confidential

It is necessary for us to participate in the preparation of a Departmental memorandum which will go to the Budget on the Department's interest in an Industrial Hygiene program. I will count on you for a first draft of the Women's Bureau particular interest in that, which I would be glad to have you thinking about but which I will find a little time on Tuesday, late in the day, to discuss with you, before you start putting anything down on paper.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

From ~~TO~~ : Miss Miller

DATE: October 26, 1944

To ~~FROM:~~ : Jennie Mohr J Mohr

OK [illegible]

SUBJECT: Industrial Hygiene Foundation meetings

The annual meetings of the Industrial Hygiene Foundation are to be held on November 15th and 16th at Pittsburgh, Pennsylvania. This is one of the organizations that we have customarily followed up and I should like to plan to attend. I am particularly interested in going because the subjects discussed are largely concentrated on health problems in industry, and the participants are usually among the outstanding people in the field. Also, I made a number of contacts last year with industrial nurses that I would like to follow up.

The meetings also would be an opportunity to get further information on types of educational material that would be useful to industrial nurses, personnel people and plant physicians. It would give me a further opportunity to find out about plants having medical records that might be suitable for my health records study.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Frieda Miller, Director

DATE: October 23, 1944

FROM : Martha Ziegler M.Z.

SUBJECT:

WOMEN'S BUREAU.
OCT 25 1944
DEPARTMENT OF LABOR

Attention Miss Mohr

In looking over some War Labor Board wage rate material the other day I noticed that one of the lists of stabilized rates issued by the regional War Labor Board in Chicago gives rates for industrial nurses in the Chicago area. Some job descriptions are included with the rates.

I thought that this material might be interesting to Miss Mohr and that she might not have seen it because of the mass of War Labor Board rates which have doubtless been received in the Bureau. I feel reasonably certain that we sent a copy of these rates to the Bureau, for Miss Spring's files, some months ago. The release is dated May 6, 1944.

JM

Miss Miller

October 17, 1944

Jennie Mohr

Labor Department Bulletin

A meeting was held in Mr. Kennedy's office on Monday morning, October 16th, to discuss revision of the Departmental bulletin on safety. Mr. O'Connell, who wrote the first draft, and Miss Lucille Buchanan of Labor Standards, Mr. ~~Herman~~ Hohman of Children's Bureau, Mr. Kossoris of Bureau of Labor Statistics, and Miss Mohr of the Women's Bureau were present. Mr. Kennedy was out of town.

We went in detail over the suggestions made by those present, who had read the manuscript. Further changes were suggested and a second draft is to be prepared and submitted again to the Committee.

JM/ml

DOROTHY L. FRAME, M. D.
15 HIGHLAND AVENUE
GLEN RIDGE, N. J.

WOMEN'S BUREAU.
OCT 6 - 1944
DEPARTMENT OF LABOR

October 4,1944

Miss Jennie Mohr
U.S. Department of Labor
Women's Bureau
Washington, D.C.

Dear Miss Mohr:

Thank you very much for your full and informative letter and for the publications of the Women's Bureau that you sent me. I am going over them with great interest.

It is very helpful too to have an idea of the principal subjects that you expect to cover in your chapter. In my chapter I shall probably discuss physical examinations, problems of menstruation, menapause and pregnancy, gynecological problems and abortions (if I can get any data on them), problems of working mothers with young children, and psychological problems of working women. Most of this would probably not conflict too much with your material.

Thank you again for your valuable help and interest.

Sincerely yours

Dorothy L. Frame, M.D.

Eastern Aircraft Division
General Motors Corporation
Bloomfield, N.J.

September 25, 1944

Dr. Dorothy L. Frame
Eastern Aircraft Division
General Motors Corporation
Bloomfield, New Jersey

Dear Dr. Frame:

I was very glad to have your letter and to hear that you are writing a chapter on Health Problems of Women in Industry for the Industrial Medicine volume of the Medical History of the War. My chapter is to deal with the activities of the Women's Bureau in matters of health of industrial women workers, and I recognize that many of the problems we are dealing with are also your concern.

At the present time I am not prepared to forward you an outline of my material, but shall be glad to do so as soon as I can. In the meantime, I can say that among the principal subjects we are working on, and I would therefore discuss, are:

Selection and placement of women workers
Maternity policies in industry
Suitability of occupations for women
Working conditions
Job changes in the war period
Accident experience
Health work of industrial nurses, women counselors, etc.
Safety and health education
Effects of long hours
Clothing standards
Rest periods and meal periods

It has so far as I know been practically impossible to get valid data on abortions among women in industry. In addition to the actual numbers, if they were obtainable, we sould have to know whether the abortions were actually affected by industrial employment, or whether unrelated factors were the cause. There might even be an increase in the number occurring among industrial women (I do not know that there are, of course) without their being caused or instigated by the job.

I am obtaining some figures on pregnancies, which I shall be glad to let you have. They will be only illustrative, and probably not very complete.

So far as I know there is practically no information on the actual effect of specific occupations on the health of women or on pelvic functions. I have gone through the medical literature with very few results. I do not believe that the article of Bradbury and Evans, published in Industrial Medicine last fall, is at all conclusive, as the numbers involved are small, the medical history not detailed, and there is no control group. However, it is one of the very few articles on the subject. Georgene Seward has published in the Psychological Bulletin for February, 1944, a study of the psychological effects of the menstrual cycle on women workers. You are, of course, familiar with the work of the American Medical Association Committee on the Health of Women in Industry. There are a few detailed studies in the Russian literature, if you can get them, but they deal with such matters as changes in respiration or metabolism during menstruation.

Enclosed you will find the following publications of the Women's Bureau, which will give you an idea of the scope of our work in relation to the health and well-being of the woman worker:

Spec
Special Bulletin:
2 - Lifting Heavy Weights in Defense Industries
3 - Safety Clothing for Women in Industry
4 - Washing and Toilet Facilities for Women in Industry
5 - Women's Effective War Work Requires Time for Meals and Rest
10 - Women's Effective War Work Requires Good Posture
14 - When You Hire Women
15 - Community Services for Women War Workers
19 - The Industrial Nurse and the Women Worker
Bulletin:
190 - Recreation and Housing for Women War Workers
192-6 - Employing Women in Shipyards
Mimeograph:
Summary of State Labor Laws for Women
Educating Women for Safety and Health
Ditto:
The Effect of Rest Periods on Output
The Work of Women on Pneumatic Tools
Multilith:
Standards for Maternity Care and Employment of Mothers in Industry

I should appreciate very much having the outline of your chapter when it is available. I think it will be well if we can discuss this matter again when our work is farther alone, so that we can fit our chapters in without too much duplication.

If there is any other information the Women's Bureau can send you, please let me know.

Sincerely yours,

Jennie Mohr,
Associate Industrial Economist

JM/ml

WOMEN'S BUREAU
SEP 18 1944
DEPARTMENT OF LABOR

DOROTHY L. FRAME, M. D.
15 HIGHLAND AVENUE
GLEN RIDGE, N. J.

September 16,1944

Miss Jennie Mohr
Associate Industrial Economist
Women's Bureau
U.S. Department of Labor
Washington, D.C.

Dear Miss Mohr:

Dr. Selby has asked me to write a chapter on Health Problems of Women in Industry for the volume on Industrial Medicine of the Medical History of the War which he and Dr. Gafafer are editing. Since this is closely related to your chapter on the Activities of the Department of Labor in the Women's Bureau, he suggested that I get in touch with you.

It would certainly be most helpful to me to have whatever recently published reports you have on women's health problems in industry.

One point that interests me considerably and that I have not been able to find data on, is the increase of abortions that has followed the employment of large numbers of women in industry. In most cases the reason appears to be economic - due to the woman's fear of losing her job and being unable to support herself and her child. It would be interesting to know how much the rate varies with the policy of the company towards pregnancy. From what experience I have had it appears to be higher where a woman is dismissed as soon as she is pregnant than where she is allowed to work for a reasonable length of time. But it is naturally very difficult to get accurate figures on abortions.

Another point that interests me is whether or not heavy work actually has any deletorious effect on the pelvic functions of a normal healthy woman, or whether it is harmful only when pelvic pathology already exists. If you happen to have any data on these problems, it would be appreciated.

I would also appreciate a rough outline of the material that you are planning to cover in your chapter so that I could keep from overlapping on your subject matter. If you would care to have mine I would be happy to send it to you as soon as it is sketched out a little better.

I shall be very grateful for whatever assistance you can give me,

Sincerely yours

Dorothy L. Frame, M.D.

Eastern Aircraft Division
General Motors Corporation
Bloomfield, N.J.

PAGLO report, by WEP

MVR
Your copy

WOMEN IN INDUSTRY
September 1943 to September 1944

Changes in Women's Employment

In the 12 months since the report of the Women in Industry Committee in September 1943, the employment of women has continued to increase. In every month through midsummer of 1944 1/ more women were employed than in the same month in any past year.

With the seasonal advances of summer that usually follow the closing of the schools, woman employment reached an all-time high of over 18½ million in July 1944. 2/ Women, who constituted some 24 or 25 percent of all workers before Pearl Harbor, now are over 34 percent of all workers.

With the military forces inducting more and more men through the year, many additional women have taken jobs for which women formerly would not have been considered. For example, women constituted 8 percent of the plant workers in major √ steel mills visited by the Women's Bureau in 1943, and a little later (January 1944) 10 percent of the production wage earners in shipyards. Women also have taken many technical and professional jobs, as analytical chemists, physicists, engineers, draftsmen, technicians in laboratories, or on radio or X-ray work. Shortages of teachers, doctors, and others also have called for women in places for which they probably would not have been considered in peacetime.

The phenomenal increases that have occurred in women's employment have developed quite unevenly in the various industries and occupations, as well as in geographic locations, concentrating particularly in war-industry centers.

During the war period, women who have come into the labor force from home housework, school, or elsewhere have been drawn in largest numbers, as would be expected, into the major war manufacturing industries and into essential military and civilian supply manufacturing. Smaller proportions have entered trade, domestic and personal service, and the business-professional group.

Women who already were employed in the prewar days also have made striking moves into different occupation groups. Women formerly in domestic service have gone to other services and to manufacturing; those in other services have gone to the manufacturing and sales groups; those from manufacturing and sales to clerical jobs; those from clerical to manufacturing, to managerial and professional types of work. Shifts in both directions have been considerable as between sales and manufacturing, sales and clerical, and domestic service and farm work.

Filling urgent labor requirements by the employment on a part-time basis of women who otherwise could not serve is a method not undertaken so fully in manufacturing plants in this country as in Great Britain, where labor shortages are more acute. But Women's Bureau agents have found many women on these so-called "victory shifts" in industry, which usually follow one of three patterns: short-hour or part-day shifts, often of a 4-hour stretch; week-end shifts; or shifts of approximately full daily length but for only a part of the week.

1/ The latest figures available at time of the present report, those for July.
2/ Total women in civilian labor force, 19,110,000.

Lay-offs Occurring in Certain Industries

Even before the report of this Committee last year, a menacing development in women's employment was appearing. For parallel to the increases that were occurring, lay-offs were beginning to take place. These continued in early 1944, and during the later spring and summer months at the same time that seasonal employment was increasing.

A striking example of the effect on workers' jobs, and especially on those of women workers', of war variations in production requirements is the enormous cutback in employment that was made in the small-arms-ammunition plants from the peak, in mid-1943 to the spring of 1944. This is an industry employing many women and admirably fitted for their work, by reason of its small product, and processes standardized in operation and requiring attention to detail. In these cut-backs, women were affected more drastically than men. Their employment dropped from 47 percent of the wage earners in the industry at peak production to 43 percent in the first quarter of 1944. An OWI report stated that, in December 1943, 18 in 100 women as compared to 12 in 100 men were affected by the cut-backs in this industry.

Curtailment of war industries is, of course, anticipated and the end of any need for it is earnestly desired. However, it is disturbing to find, in this curtailment clearly experienced, examples of dismissal according to arbitrary methods rather than by logical, orderly, well thought out plans -- for women, without regard to whether or not individuals had been a long-stable part of the labor force, or whether such action would cause undue suffering to dependents not otherwise provided for.

In this connection it is well to remember that the proportion of married women in the population has increased considerably since Pearl Harbor, and that there will be many cases in which they may have to give some financial aid to disabled husbands or to families totally dependent upon them. Consequently, it must be expected that a somewhat larger proportion of married women than formerly may have to remain in the labor force.

Fortunately, the over-all job picture at present still is an optimistic one for the worker. Shortages of labor still exist in many areas, and in the country as a whole plenty of jobs still are calling for workers. But the lay-off situation referred to gives an appalling foretaste of what might occur on a much wider scale in many industries. Imperatively it points to the necessity of plans for orderly conversion, and for methods of assuring a high level of employment.

Movements in Women's Wages

During the past year, women's wages have continued to rise. However, a considerable (and undeterminable) part of this rise is due to longer hours of work with overtime pay, a situation that cannot be expected to be of long duration.

As replacement of men by women continues, the question of equal pay becomes increasingly important. Women have directly replaced men who are leaving for the armed forces or for other employment. They have been promoted to vacancies created by upgrading male workers to jobs requiring fuller utilization of skills. They have been hired, as additional workers not directly replacing men, in expanding industries and occupations which hitherto employed chiefly male workers. Reports from more than 1,100 New York plants in the last part of 1943 showed that two-thirds of the plants that replaced men with women paid women the same entering rates as men had received on the job.

Many war plants throughout the country have applied the principle of equal pay in beginning rates. But even when entrance rates are the same for women as for men, difficulties often arise as to the proper upgrading and promotion of women. Women's Bureau surveys indicate that in some of the newer or better organized plants, as for example in aircraft or electrical industries, systems of upgrading are fairly well worked out, and women find some opportunities. But in many instances there is relatively little opportunity for women to advance to any considerable extent, due sometimes to a general lack of any well-organized system of upgrading, sometimes to the placement of women in jobs that are not in the usual line for the job progression, in which neither proficiency nor length of service can bring them beyond a limited early stage of the work. Flagrant cases even have been reported where women who were training new workers were paid less than the male employees they were training, or were later placed under young male group leaders whom they had trained.

Unions, in the main, have been active in pressing for equal pay and the large unions in the "woman-employing" industries now have hundreds of contracts with equal-pay clauses. It has become evident that some type of legislation may be needed to help in advancing equal pay for women workers. New York has this year been added to the other four States 3/ having an equal-pay law. Effective July 1, New York's law provides that no employee shall be subjected to discrimination in rate of pay because of sex. The Illinois equal-pay law, passed last year, also went into effect July 1 of this year. Operations under the equal-pay laws in these two States will be watched with great interest in the year ahead.

During the past year, New York has passed two other laws applying to wages, Kentucky one. Perhaps most important of these is the New York amendment to the minimum-wage law providing that no male shall be paid below the minimum rate fixed for women. This went into effect on July 1. This is real pioneering in State legislation, Connecticut formerly having been the only State with effective legislation to apply to men minimum wage provisions earlier enacted for women.

A New York law, first in opperation on June 1 provides that wages received in the Department of Labor for an employee an d unclaimed in a year's time shall be deemed abandoned property; and a new Kentucky law provides that employers of 10 or more persons shall furnish their workers on each pay day with statements of the purposes of any wage deductions [as for social security, for example].

From these fragmentary evidences of progress and of continued need for advancememt, it is apparent that much work remains to be done to secure for women both equal pay on the job and equal opportunities for training and for advancement.

3/ Illinois, Michigan, Montana, and Washington.

New Labor Laws Affecting Women Workers

As you know, the past year has been one of only a very small number of legislative sessions, and hence there have been few changes in State labor laws affecting women. Wage legislation, passed in two States, New York and Kentucky, is referred to elsewhere. War-powers acts, which permit relaxation in State laws for the safeguarding of women workers, were re-enacted or extended in two States -- Connecticut and Louisiana. A Virginia act extends the hour maximum for women engaged in essential war work. [See Supplement for further details.]

In this year of few legislative sessions, and in this particular period when rapid industrial changes are occurring and are about to occur, it may be a good time to stress the fact that the mere passage of a labor law, even of a good law, has in itself only a limited value in securing the conditions desired for workers. Adequate inspection personnel and practices are an indispensable corollary to even the best of laws.

Strong basic legal backing has been found necessary to enable effective dealing with the exceptional recalcitrant employer, but much of an employer's relation with his workers is in the realm not of law but of social custom, and has its foundation in a competent knowledge of wise methods of handling personnel and of the factors necessary to workers' health and welfare and to good standards of production. Even when satisfactory legislation is lacking, informed and tactful inspectors can do much to stimulate employers toward the best practices in employment and operation.

The I.L.O. Conference and a Far-Seeing Program for Women

An important labor mile-stone was last spring's Philadelphia meeting of delegates from 43 countries in the Conference of the International Labor Organization held after a 4-year war suspension of its annual legislative assemblies.

A forward-looking program for working women is one of the results of this Conference, underlined by specific points that apply to women in its adopted programs, and fully including them in the over-all "Declaration" of the Conference, popularly called the "Philadelphia Charter".

Very important to working women are certain of its provisions, as for example those for "full employment and the raising of standards of living," "adequate protection for the life and health of workers in all occupations," and many others, as well as the comprehensive social security program approved by the Conference.

The program for the guidance of governments adopted by the Conference includes plans for a public employment service, for demobilization, reemployment, and training, and for adjustment of women in the industrial shift-over; it recommends that: "The redistribution of women workers in each national economy should be carried out on the principle of complete equality of opportunity for men and women in respect of admission to employment on the basis of their individual merit, skill and experience, and steps should be taken to encourage the establishment of wage rates on the basis of job content, without regard to sex."

The Conference resolution intended for inclusion in a general or special treaty between nations seeks to assure international collaboration on major matters to improve the lot of ordinary men and women, as in opportunities for employment, education and training, medical care, income security, and for the right of free association. A report approved by the Conference proposing minimum standards of social policy for dependent territories includes the provision for improvement in the employment and social status of women in such territories.

Focusing Toward the Reconversion Period

The serious consequences to some workers of the recent lay-offs (referred to) sharply force a beginning in constructive thinking about the reconversion problems and how to devise now effective ways to meet them. Primarily, of course, such thinking must be directed toward methods of developing a high level of employment, including employment opportunities for women workers. Some of the women who have entered the labor force will not remain there. But many women must continue to work.

The skills of women that have been so valuable to industry during the war period must not now be lost. Ways must be found to use them. The services that women have given while this country has an extreme need for their work make it an obligation on the public authorities to see to it:

(1) That women are not dismissed for arbitrary reasons, but that when cutdowns are necessary women shall be retained on the job in reasonable proportions, and that when imperative circumstances do require some to go they shall be given suitable advance notice;

(2) That the public place ment agencies give women as effective service as conditions make possible in finding jobs;

(3) That when women lose their jobs, they should not be barred from receipt of unemployment compensation benefits through technical interpretations that are, in effect, discriminatory rulings based on sex.

(4) That the most effective plans possible be developed to create job opportunities for those women who find it necessary to remain in the labor force.

To accomplish the foregoing and their other basic objectives, labor officials will agree on the paramount importance of placing their full influence and effort behind effective policies designed to promote a high level of employment.

WOMEN IN INDUSTRY, SEPTEMBER 1943 TO SEPTEMBER 1944

Report to International Association of Governmental Labor Officials

Supplement: Further Details as to Labor Laws Mentioned

War Relaxation Acts

War relaxation acts were enacted, re-enacted, or extended in four States--Connecticut, Kentucky, Louisiana, and Oklahoma.

Connecticut - The act empowering the Governor to modify or suspend any statute conflicting with the war effort is extended to February 1, 1945.

Kentucky - Repeals act of 1943 suspending during the war observance of certain holidays.

Louisiana - The act empowering the Commissioner of Labor to grant or to revoke dispensations from labor laws was in part amended and re-enacted. As amended, no dispensation shall be granted "unless warranted by the war emergency" (was "to any employer outside of war work") nor for employment of minors under 16 years (was 18).

Oklahoma - Operation of the Sunday law as it applies to manufacture of war materials for the United States was suspended for the duration.

Hour-Law Amendment

Virginia - An amendment to the hour law, effective March 3, 1944, and limited to a two-year period (unless the war ends sooner) extends the 9-48-hour limit for women's work to 10-52 in essential war work, providing that the Commissioner of Labor still can issue as before permits for longer hours [up to 56 a week].

Wage Laws

Three acts or amendments relating to women's wages were passed in New York, one in Kentucky.

Kentucky - All employers of 10 or more persons must furnish the worker on each pay day with a statement of deductions made from that period's pay [as for social security, for example].

New York -

(1) Minimum Wage - An amendment to the law provides that no male shall be employed in any occupation at less than the minimum standards or rates of wages fixed for women and minors in such occupation.

(2) Equal pay - A new act provides that no employee shall, because of sex be subjected to any discrimination in the rate of her or his pay. A differential in pay between employees based on a factor or factors other than sex shall not constitute discrimination.

(3) Unclaimed Wages - A new act provides that wages received from an employer by the Department of Labor and remaining unclaimed for one year after receipt by the department shall be deemed abandoned property.

WOMEN IN INDUSTRY
Sept. 1943 - Sept. 1944

Annual Report to the

INTERNATIONAL ASSOCIATION OF GOVERNMENTAL LABOR OFFICIALS

Changes in Women's Employment
Lay-offs Occurring in Certain Industries
Movements in Women's Wages
New Labor Laws Affecting Women Workers
The I.L.O. Conference and a Far-Seeing Program for Women
Focusing Toward the Reconversion Period

__Supplement:__ Further Details as to Labor Laws Mentioned

Miss Miller September 26, 1944

Jennie Mohr

Regional Safety Conference in Wheeling, W. Va.

I attended the last day and a half of a 5-day conference, this being the time devoted to industrial safety. The conference is one of a series being held throughout West Virginia. This year the State Safety Council is beginning to build a program for women in the safety conference. Attendance at the first session, at which I spoke, was fairly good, but throughout the conference there were very few women present. I discussed with Mr. W.C. Easley, who is organizing the conferences, and with Mr. E.A. Ellis, who presided at most of the sessions, the importance of actually bringing women into the picture, and not just talking about them. This seems to be a relatively new idea to most of the safety and personnel people in the region, but Mr. Easley believes it will be done. He plans to have a session on women in industry during the Huntington conference next week.

I had an opportunity also to talk to Mr. Sheer, safety engineer in the Wheeling Steel Corp., and to Mr. Darrah, personnel manager at the Wheeling Stamping Co. Mr. Sheer talked about the employment of women in Wheeling Steel, and their efficiency on the job. Mr. Darrah gave me a copy of the maternity policy statement being used by his company, copy of which is attached. I had no opportunity to discuss this with him, but shall wrtie him and send the Women's Bureau material on this subject.

Mr. Charles Sattler, Commissioner of Labor for West Virginia, talked to me about accidents to women. He agreed to send me data based on their workmen's compensation reports, which will be for use in my current accident study.

An outstanding paper at this session was a talk on eye protection by Mr. E.L. Laughorn, of Morgantown Ordnance Corp. The next session included a good statement by Mr. Weekley of Community War Services in Washington, on recreation for industrial workers, and a talk on hazards in the mining industry, by a member of the Engineering faculty of the University of West Virginia. Since a third speaker failed to show up, Mr. Ellis asked me if I would be willing to pinch-hit. I took this opportunity to bring out the necessity of having women attend the conferences and participate in plant safety programs, if the plants wanted them to develop good safety practices. I also described briefly how the Women's Bureau might be of service to them on matters pertaining to the health and welfare of women workers.

At the conference dinner, Mr. George B. Penniman, Jr., Regional head of the WMC utilization committee, talked on recruiting workers for war work.

JM/ml

LEAVE OF ABSENCE FOR MATERNITY CASES

(Wheeling Stamping Company, Wheeling, West Virginia)

Women have been working for the Wheeling Stamping Company for many years. Your services are vitally important to us and your earnings are equally important to you. In the interest of your good health, your continued earning ability, and our mutual desire to avoid unnecessary trouble, we ask your cooperation.

Pregnancy is a condition warranting especially close cooperation. As soon as a woman thinks she may be pregnant she should consult a physician. His examination will remove any doubt and if she is pregnant, he will give proper advice on the hygiene of pregnancy.

Under these conditions, we ask of the woman employee that she bring a statement from her family physician to the Nurse on duty in the First Aid Room. The statement will inform us that she is able to continue working at her present job, and the probable date of delivery. Most important, the Company Nurse will know of her condition, and the physician to consult if the woman employee becomes ill or meets with an accident while at work.

The policy of arranging Leave of Absence for Maternity Cases is designed to protect the health and well being of both Mother and child, as well as the continuous Seniority record of the employee.

The pregnant employee must retire by a written Leave of Absence, prior to 60 days before the expected date of delivery. Such Leave of Absence may commence at an earlier date if the family physician advises. In either case a written statement from the physician in charge must be given to the management to support a Leave of Absence which will terminate 60 days after actual delivery date.

A written statement from the Physician in charge, certifying that the employee is physically and emotionally able to return to work is required to support reinstatement. If she is not able to resume working the leave of absence may be extended for not more than an additional 60 day period.

Failure to cooperate, in this very important procedure, may be just cause for dismissal.

Miss Miller September 26, 1944
Attention Miss Nienburg
Jennie Mohr Carbon copy Miss Ziegler

Health and safety problems in ammunition loading plants

Tetryl

Miss Ziegler's description of the experience in the Elwood Ordnance of workers' hair turning red probably does refer to the effects of tetryl. Research by Dr. Louis Schwartz, the authority on industrial dermatitis, indicates that this happens to blondes. I am enclosing herewith an excerpt from one of his papers that discusses both the dermatitis and preventive measures that can be taken.

Explosive D, which is ammonium picrate, may also dye the hair of workers exposed to it. Treatment and preventive measures are the same as for tetryl.

I shall see Miss Ziegler in Chicago about October 1st and shall be glad to provide more information if she would like to have it.

Ordnance Safety Records

Last May I received from Lt. Colonel Stratton, of the Safety and Security Branch of the Office of Chief of Ordnance, in Chicago, a tabulation of accidents to women for all government-owned Ordnance establishments for 1943. In acknowledging this material, I told Col. Stratton that I assumed it would be all right to use it statistically in my current study of accidents; and asked him to let me know if this was not correct. I have not heard again and am using it.

This material does not break down injuries by poisoning into different chemicals; but I notice that over ten percent of all injuries are due to "inhalation."

If there is a possibility of getting more specific information about these injuries through Col. Field's office, I should be very grateful for it. I shall show Miss Ziegler the material I have obtained when I see her in Chicago.

JM/ml

DERMATITIS FROM EXPLOSIVES

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LOUIS SCHWARTZ, M.D.

(Excerpt)

Dermatitis caused by tetryl is probably the most frequent cutaneous hazard accompanying the manufacture of munitions. It occurs in the making of tetryl, especially in the drying house, where it develops in about 50 per cent of the workers; it occurs also in the production of pellets and in the loading of fuses and boosters. One shell-loading plant, for example, with a working population of 6,364 exposed to tetryl, has reported 1,904 (30 per cent) having tetryl dermatitis in the first six months of operation.

Dermatitis generally occurs during the first three weeks of employment among those who have never before been exposed to the material, cases reaching a maximum number about the third week. Most workers become "hardened" from one to four weeks after the development of dermatitis and are no longer irritated by tetryl. Especially is this true if they continue working while being treated. It was noted at one shell-loading plant that about 85 per cent of the workers who had been affected became nonreactive; while at another, although exact figures are not available, the incidence of dermatitis became lower the longer the workers were employed. A small percentage of workers apparently never become completely insensitive and dermatitis develops whenever they are exposed even to minute quantities of tetryl. The amount remaining on a fellow worker's street clothes has in some instances been sufficient to light up dermatitis in a susceptible worker although the contact lasted only during the ride home. Some workers become "hardened" more gradually or to a lesser degree and never quite to the point of complete immunity.

The most frequent sites of tetryl dermatitis are about the mouth, on the cheeks, around the eyes and on the neck. In some cases there is considerable edema of the face, the eyes being swollen shut. Dermatitis of the hands, the arms, the genitals and other parts of the body touched with soiled hands may also occur but is infrequent. Nosebleed without ulceration of the nasal mucosa often occurs. The skin itches, then becomes erythematous, and papules and vesicles may develop. The latter may break and ooze. Later, roughness and scaling may occur. The palms and fingers are usually stained dark yellow, and the hair of blonds becomes a typical "tetryl red." Most workers show staining of the hands, and a few coloration of the hair without any evidence of cutaneous irritation. Workers thus affected are sometimes called "canaries." The epithelium of the palms is indelibly stained, and it takes two or three weeks after exposure ceases for the stain to fade out.

The treatment of tetryl dermatitis consists in the application of cold boric acid dressings to the swollen face, followed by mild ointments as the swelling disappears and desquamation occurs.

The stain on the hands is difficult to remove. The use of a 10 per cent aqueous solution of sodium sulfite, followed by washing with soap and water, is thought to be the best way to remove it. The sodium sulfite may be incorporated into the soap, or potassium sulfite may be put into liquid soap, which reduces the time required for removal of the stain. This method of washing the hands also serves as an indication of the removal of the free tetryl, for as long as there is free tetryl on the skin a purple color will show in the sodium sulfite solution.

The following preventive measures are recommended: 1. Freshly laundered coveralls should be provided daily for every worker exposed to tetryl. 2. Workers handling tetryl should wear (a) soft washable leather gloves fastened at the wrists so that the dust cannot fall into the gloves, (b) impervious sleeves fastened around the glove at the wrist and extending up to the axilla to protect the arms and (c) impervious aprons for the protection of the anterior surfaces of the body. 3. As compulsory shower baths after work are an important factor in the prevention of tetryl dermatitis, time at the company's expense should be allowed the workers for taking baths. 4. Since the skin of the face is affected from touching it with soiled fingers and from irritation caused by the respirator touching the face, a protective preparation should be applied to it. Such an application should be of the invisible glove type reinforced by a powder to prevent it from being easily penetrated by sharp particles. The formula given in table 1 was found to give better protection than any other available. The shellac forms the film on the skin when the alcohol evaporates. In the film are embedded the solid ingredients for reinforcement. The perborate liberates oxygen when it is wetted. The oxygen tends to detoxify tetryl. The linseed oil plasticizes the shellac, and the carbitol permits the film to be removed after work by washing with water.

The water soluble type of invisible glove application also gives considerable protection. The formula given in table 2 incorporates it with a reinforcing powder.

Reliance for the prevention of tetryl dermatitis should not be placed on protective ointments alone. These should be used in conjunction with all the other preventive methods mentioned. All workers need not use all these protective measures. Those who have worked for a long time without getting dermatitis or those who have become nonreactive need not do any more than wear clean protective clothing and take shower baths after work. Only new workers and those who are sensitive to tetryl must observe all these preventive measures.

Systemic poisoning from tetryl is a disputed subject. While some cases have been reported, most authorities deny its occurence.

Petrolatum inserted into the nostrils several times a day may prevent congestion of the nasal mucosa and nosebleed. The hair can be protected from the dyeing action of tetryl by wearing a close-fitting cap or hood.

Miss Miller Sept. 9, 1944

Jennie Mohr

Bill to incorporate the National Safety Council

Apropos of the forthcoming united bulletin of the Labor Department on its health and safety functions you may like to see this bill for the incorporation of the National Safety Council, Apparently they are trying to establish themselves as the agency for the Government to be responsible for safety programs and information. Mr. Kennedy mentioned that he thought that if this bill went through it might mean the replacement of safety programs in the Department of Labor by the National Safety Council.

Miss Miller August 24, 1944

Jennie Mohr

Department of Labor Safety Committee

The newly established departmental safety committee met to plan a safety program. It was decided that the principal things to be done were as follows:

1. A leaflet to be prepared and distributed to all employees of the Labor Department to inform them of facilities for first aid, the importance of reporting injuries, eligibility for workmen's compensation, and ~~to~~ similar matters. A committee made up of Mr. Cramer, Personnel Department, Mr. Peterman, Labor Standards and Miss Mohr, Women's Bureau was appointed to prepare this.

2. The supervisors of Bureaus and Divisions in Bureaus, are to be informed of the safety campaign in the Department and urged to help in obtaining cooperation of all employees.

3. Under the order creating the committee monthly inspections of the Labor Department Buildings are to be held. Detailed plans for carrying out these inspections are being made.

4. Records from the first-aid department are to be utilized in analyzing accidents in the Department and securing a basis for developing preventive measures.

5. The Labor Department Building is the only one of the six buildings housing Bureaus of the Department in which there is a first-aid room. First-aid facilities under people trained in first aid are to be set-up in all other Labor Department buildings.

6. An analysis of the accidents in the first 6 months of 1944 is to be made in order to determine the specific points which inspection should stress at first.

7. Monthly meetings are to be held on the 4th Wednesday of each month at 10 o'clock in the morning in Mr. Kennedy's office. I believe that minutes of the meetings will be available for distribution to the committee members.

In the Women's Bureau it would be desirable if attention of the Heads of the Divisions could be called to the importance of noting and reporting even minor injuries. It is important that all injuries requiring first aid should receive it, that the first-aid room should be able to get a record of such injuries, and that even slight injuries ~~is~~ not requiring visits to the first-aid room should be noted here. A good program of prevention of accidents takes account of the near misses as well as actual casualities.

JM/ml

Jm

Miss Miller August 17, 1944

Jennie Mohr

Meeting of Safety Campaign in the Paper and Pulp Industry, Inaugurated by the Division of Labor Standards.

About 22 people attended the first meeting of the safety campaign in the paper and pulp industry, held in the Secretary of Labor's conference room on Tuesday afternoon, August 15th. They represented private and government agencies interested in the industry's safety program. Cooperating agencies are:

- American Paper and Pulp Association (Trade Association, a federation of 23 specialized associations covering at least 80 percent of the industry)
- Two AFL unions: International Brotherhood of Paper Makers and International Brotherhood of Pulp, Sulphite and Paper Mill Workers, representing about 90,000 workers in over 500 locals
- National Safety Council
- National Conservation Bureau
- American Standards Association
- Red Cross
- American Mutual Alliance
- International Association of Governmental Labor Officials
- National Fire Protection Association
- U.S. Chamber of Commerce
- National Bureau of Standards
- Department of Agriculture
- Department of Commerce
- U.S. Public Health Service
- Department of Labor: Labor Standards, Children's Bureau, Bureau of Labor Statistics, Women's Bureau

The main purpose of the meeting was to consider organization and procedures of the campaign. Preliminary drafts of two manuals were discussed: "Organizing for Safety" and "The Control of Accidents." The former is a statement of the purpose and plan of the campaign, who is in it and what their functions are. It will be sent to all plants (some 900) in the industry, to point out to the industry what its safety problem is, and to introduce the campaign and arouse interest. The frequency rate in paper and pulp is about 30, which indicates that a good deal needs to be done to improve the safety record.

The question of whether the cutting of pulpwood should be included, or should be classified in the logging industry, was discussed at great length. It was finally decided that since cutting pulpwood is not a major activity in this industry, as most pulp and paper plants do not do it, it would not be included unless an individual plant requests help on that phase of its work. (The implication seems to be that although this phase of the program will not be pushed by the field people, it will nevertheless be necessary to set up standards and techniques in pulpwood cutting for the benefit of the few plants that will want them.)

The procedure of the campaign is to follow in general that of the earlier campaign in the slaughtering and meat packing industry. There will be a three-month intensive campaign, during October, November, and December, in which every pulp and paper plant will be visited; the aim is to make three or four visits per plant. Details are described in the typed memorandum attached hereto. It is intended that this intensive campaign will lead into a permanent safety program in the industry, carried on principally by the industry itself.

At the meeting representatives of the various agencies spoke of their specific interests in the campaign and expressed their willingness to work on it.

Union representatives mentioned the responsibility of the unions for cooperating with management in establishing safety standards and for educating the workers in safety. Mr. Kennedy mentioned the special 64-hour safety courses being developed for unions by the National Committee for the Conservation of Manpower in War Industries; the union men agreed it was important for the unions to take advantage of these courses.

The insurance companies also will carry on safety training courses and develop safety information for their plants in the industry.

The U. S. Public Health Service and State Health Departments are being asked to issue leaflets on specific chemical hazards encountered in paper and pulp.

The Department of Agriculture and especially the Forestry Service are concerned with conservation problems, reforestration, and fire prevention.

The Division of Labor Standards will act as clearing house, organize the field work, issue reports, and coordinate the activities of the various groups.

The Bureau of Labor Statistics is furnishing basic statistical material, including that derived from its monthly reports on accidents from individual plants. Information on the industry as a whole will be compiled from these individual plant reports.

The Children's Bureau has set up a tentative list of recommendations for the employment of minors in paper and pulp mills, but will expect to develop final standards on the basis of information about hazards which will be obtained through this campaign.

The Women's Bureau is interested in standards for the employment of women in the paper and pulp mills. The extent to which women are employed and the types of jobs they are on were discussed. Special problems involved in using women were mentioned by the representative of the Paper and Pulp Association who also represented one of the large mills. It was decided that since women now constitute about 15 percent of the productive employees in the industry, it is desirable to introduce into the final draft of the manual on "Control of Accidents" some statements about recommendations for their employment. The Women's Bureau representative at the meeting was asked to prepare this material for the manual.

The question was raised whether the campaign was to include health as well as safety problems, and Mr. Kennedy said it was. In view of this fact, certain specific standards already prepared by the Women's Bureau were mentioned as being part of the material to be used in the course of the campaign. Since this meeting was concerned with organization and scope of the program, and not with its content, these specific recommendations were only briefly mentioned. They will be taken up in detail later.

Preliminary forms of two supplements to the manual on controlling accidents, "Safety Rules for Paper and Pulp Plants" and "Standard Safe Practices," have been issued. It is my intention to suggest for these supplements specific recommendations that have to do with the employment of women, where such recommendations seem to be desirable.

JM/ml

cc Miss Niemburg
Miss Pidgeon

Jennie Mohr
11-12 July, 1944

Memorandum on visit to Pittsburgh yards of the B&O Railroad

After a number of conversations with Miss Helen Foreman, inspector of women personnel, concerning clothing, safety and health problems of women working on the B&O, I was asked to visit their yards at Pittsburgh and New Castle. On July 11th I went to New Castle, and on the 12th visited the yards at Glenwood and in Pittsburgh.

I talked with Miss Helen Foreman; Mr. Henry Sherrard, Superintendent of Shops; Mr. Robinson, Division Master Mechanic in charge of the Pittsburgh roundhouse; Mr. Norman, foreman of the track gang; and other supervisors.

The places visited:
About 3 miles out from New Castle, a track gang of 20 women
In the Glenwood yard: the shops, yard, roundhouse
In the city of Pittsburgh: the shop for cleaning passenger cars

Employment of women:

Approximately 3,400 women are employed by the B&O Railroad; 1,000 of these are clerical and professional workers, the rest are on maintenance, repair, track work, etc.

There are approximately 600 Negro women employed. Many of these are train porters (on coaches, not on the Pullmans). Some of them work in track gangs, but not with white workers. In some of the shops, though not in those visited, Negro women are employed on maintenance and repair work.

Women are hired on application at the Shop Superintendent's office; some are relatives and friends of employees; some are recruited by Miss Foreman in various communities. The Company is apparently in need of more women than it can get.

No selection or placement procedures are carried out. There is a cursory physical examination for both men and women, which shows up obvious conditions such as bad heart or lungs. But women are assigned to any department or jobs that may call for women at the time they come in. The B&O does not have a Personnel Department, though Miss Foreman says that there now is a new position, Personnel Director, and she expects this department to be developed.

Miss Foreman talks to all the women, as she visits the various divisions on the line. At first, she talked to all women before they were employed, but as more were taken on at widely separated installations, this was not feasible. She usually gets a group of new employees together and discusses such matters as clothing, child care facilities, rest rooms, lunch periods, etc.; listens to complaints and takes up matters that need the attention of the central office in

Baltimore, where she has headquarters. She was formerly in the Traffic Department. She considers her present job to be, in part, that of making the women workers part of the "one happy family" of the B&O.

A few women, in the coach-cleaning department, have been employed for many years. I talked to one woman who began to work for the B&O as a coach cleaner in 1906, "when we had lamp-lights in the cars," and who has been doing this job, with one break of a few years before the last war, continuously ever since. A few others have records of 16 to 27 years of service.

The track gang:

Twenty women were working under a foreman, doing maintenance work on the track about three miles out of New Castle. Their job at the time of the visit was dressing and lining ballast. Ballast is the mixture of slag and small stones used to even up the track and make a smooth roadbed, to fill between the ties and to line the tracks for a distance of about a foot and a half on either side. It is put on top of a bed of ash. At the present time, partly because of the availability of much slag from the neighboring steel mills, the slag is used more than the stones; though it is not so good, is more porous, and needs to be replaced more often. The women use shovels (weight about 7 or 8 pounds) to distribute the ballast. They use their bare hands (sometimes but not always they wear gloves) to smooth it close to the tracks. The lining of ballast along the road is evened up along a board used as a guide.

The women also raise the tracks with jacks, when they are uneven. Several jacks are used at each side of a rail, and the tracks lifted enough to enable the ballast to be renewed or re-distributed. The foreman is responsible for making the tracks straight, using a leveler for this purpose.

Women wheel and shovel lime and soda ash. Usually they alternately wheel five barrow-loads and load five barrow-loads.

Women also dig ditches alongside the track, build cribbing for ditches (to make a safe and smooth incline on each side of the track).

Women do not replace or lay ties. The foreman says that work is very heavy.

About 500 women work on track gangs on the B&O. Some are Negroes, but they work in separate gangs; no mixing of Negro and white women on a track gang.

The foreman told me that the women also shovel coal. And that one day in April, 17 girls shovelled (by hand) 43 tons, 600 lbs. of coal in 57 minutes. (These figures seemed so extreme I asked him to repeat them, to be sure I heard right.)

Repair and Maintenance work in Glenwood shops:

Locomotive Department: At present there are 38 women, distributed as follows:

- 2 clerks
- 2 stenographers
- 2 messengers
- 1 janitress
- 12 machinist helpers
- 5 boilermaker helpers
- 10 laborers
- 1 helper carman
- 2 helper blacksmith
- 1 helper painter

Car Department:

29 helper carman

Jobs:

Machinist helpers: operate guide grinders and portable hand grinders; drill press; work on trimming gang; assist machinist in erecting jobs (but do not handle heavy parts); magnaflux axles to detect flaws in the steel.

Boilermaker helpers: heat, pass, hold on, and buck up rivets; assist in firebox work--I saw one woman working inside the firebox of an engine; tool-room attendants.

Laborers: sweep, clean machinery.

Carmen helpers: assist carpenters and tender repairmen--putty windows, do sewing on curtains. Heat rivets, hold on, buck up; clamp floors, drill and ream; help put together templates and pre-fabricated sides of gondolas. Pack journal boxes. Have short practice period with a practice-box, and a day or two of guidance by an experienced packer. Journal boxes are packed with oil-saturated "waste" (shredded fabric).

Blacksmith helper: assist in manufacturing springs; strip and assemble springs for repair. One woman assists on punch and shear.

Painter helper: scrape locomotives; help in lettering.

Round-house:

Women here are mainly wiping engines, washing them with soap and water. The engines on freight trains are sprayed with a graphite surfacing material (I don't know if it is a paint, probably is). When the women wash these engines off, they get completely covered with graphite.

A woman had formerly been employed to handle the switches operating the turn-table, and was found very efficient. She had an accident (the only reportable injury to women in this yard) which was the fault of a fellow worker, not herself; and it was decided not to employ women on this job.

Car cleaning:

Cleaning the insides of coaches is the one job in which women have been traditionally used in the B&O--and there are women who have been doing this for many years. Ceilings, walls, windows, floors, light fixtures, seats are scrubbed and cleaned. Each coach is cleaned after every run, but periodically they get a complete and thorough cleaning and painting job. Women painters' helpers work in the cleaning department, preparing surfaces for painting, scraping old paint.

Outsides of coaches are washed by women. The yard has a washing-machine, consisting of a double set of revolving brushes and pipes through which water is sprayed on the cars. An engine slowly pulls the cars between the brushes, which automatically wash them; it takes about a minute to wash a car in this way.

Stores:

A number of women are employed as stores attendants. One building houses four stories of material, and there are other store rooms in the yard as well. Women keep account of what comes in and goes out, distribute orders, and keep material filed. Heavy parts are lifted by men, I was told the women never did any heavy lifting; though I observed one woman stacking rubber tubing on a push-cart which seemed very heavy. I lifted one tube which seemed to weigh about ten pounds, and she was piling two or three at a time. Later I saw her pushing the cart in another part of the building.

The women seemed to be excellent at this job, took a good deal of responsibility, were familiar with many kinds of items, and took care of the bookkeeping involved.

Hours, rates, classifications

I obtained very little information about these subjects. Laborers, including those on the track gang, start in at 66¢ an hour. Helpers may get up to 82¢ or 83¢ an hour as a maximum. These figures are tentative only, as new rates were recently adopted and Miss Foreman was not sure of them.

The women work 8 hours a day, 6 days a week, with 30 minutes for lunch on their own time. Occasionally some may work on Sunday and take off another day. Occasionally there is overtime beyond 8 hours, but these additional hours are taken off on Saturday afternoon. No relaxation from the 48-hour law has been requested.

In a few places women are working on second and third shifts, but not in isolated parts of the yard. Only one shift for track gang.

The Pittsburgh yards have only one forewoman, working in the round-house. Other Divisions of the Railroad have more, however. Except for this forewoman, no woman is rated above a helper, and there is little expectation that any one will be. The officials spoke of great resistance to women on the part of the unions, who apparently agreed to take them on only because they were faced with the alternative of taking Negro men. (I did not discuss this question with any of the union people--this is what the shop superintendent told me.) Except for some laborers, there are no Negro men in the yard (that is, there are none with helper ratings).

Safety and health:

Track gang: The women were working on an extremely hot day in an entirely exposed area. Most of them wore their dungarees rolled up; had short sleeves, no hats or caps (the foreman said they "refused to wear straw hats"; no sun-glasses. They were all sunburned and I wondered if some of them would not suffer from over-exposure. Miss Foreman, when I mentioned this, said that the sun was very good for people--she was a sun-worshipper herself.

I mentioned the use of salt tablets, which no one seemed to have thought of. Miss Foreman said she would look into the advisability of supplying them. When the gang works near the yards, they get their water from the regular yard facilities. But here, at a distance of 3 miles from the yard, they relied on buckets of water which they filled frequently from nearby houses. The buckets are covered, and occasionally (though not in this instance) ice was available. I did not see any supply of paper cups, and failed to ask about them.

Portable toilets are carried along as the gang travels down the track. When men and women are working close together, or in one gang, two toilets are provided. (Miss Foreman told me that at first they were not labelled, and the men would use the women's if it was nearer than their own. Now they are labelled and locked, and the women have keys.)

Few of the women wore gloves, although they worked not only with shovels but also with their bare hands, smoothing the ballast close to the ties. We discussed gloves, the disadvantages of leather ones and plain canvas ones. There is a canvas glove with a special fabric covering that they found most practical, but it is unavailable. I checked with WPB and was told that the company would get an AA1 rating for these gloves if they asked for it. I shall pass this information on to the B&O.

Mr. Norman, the foreman, said that he took time and effort to teach the girls how to handle their tools, how to put down and pick up a shovel, how to load and use a wheelbarrow. He gave the girls the Company's safety regulations, and discussed and explained them. When a new girl comes on the job, he takes her aside and teaches her both the safety and the job techniques, before he puts her alongside the others, and has her then work for a while with an old-timer, so that she will not feel too strange and incompetent at first.

In the yards: Except for heat, dirt, and some climbing hazards around the engines and in the car-cleaning jobs, the women did not appear to be doing especially hazardous tasks. There seemed to me to be considerable possibility of dermatitis, especially in packing journal-boxes and in wiping engines. The former is done by handling with bare hands the packing material which is saturated with oil. Gloves are not desired, because of the chance of getting the fabric caught along with the packing material inside the boxes. The engine-wiping job is extremely dirty, especially on the engines which have been sprayed with a graphite substance. Women working on these engines were absolutely black, from head to foot. They wore short sleeves. I discussed the desirability of wearing long-sleeved coveralls, and Miss Foreman said she had just got some in and would see that the girls wore them. I was told that the graphite was hard to get off, it required a good deal of scrubbing, but the girls managed to be clean before they left work. I am enquiring of the Public Health Service about the effects of graphite, and shall report to Miss Foreman what I find out.

Everyone insisted that there was no dermatitis at all. I asked to talk to the medical director, but did not get to. I could not get figures on accidents or illness-I was told there just weren't any accidents or illness. The one accident to the woman in the round-house was the only one so far, I was told.

The rest rooms appear to be sufficient in number and pretty well distributed. One I saw had showers. They are only moderately clean, and are not attractive. They are made over from men's restrooms. In some there are electric plates where the women can heat food or prepare hot drinks. There is one space in the balcony of the large shop that has tables and benches where lunch can be eaten. It is removed from the work places and relatively clean. It seems impossible to keep anything very clean in the yard, although I was really impressed by the housekeeping, the well-kept aisles, and the constant effort to have the place cleaned up.

A couple of restrooms had cots covered with black oilcloth on which the women could lie down. One had a matron in charge (the room was cleaner than she was). The oilcloth was dusty and not very inviting. One room had a cot with a blanket and pillow, but so exposed that they were quite dusty. There is a dispensary where women can lie down if they are ill--but I was told no one ever needed to.

Clothing: Miss Foreman spends a good deal of time and effort to get good work clothing, which the women buy at cost, via payroll deduction. In the repair shop and in the yard every woman I saw was wearing a standard coverall. In the round-house, and in the car-cleaning yard, and on the track gang, they were wearing miscellaneous clothes, mainly blouses or sweaters and slacks or dungarees. There is nothing mandatory about wearing the coveralls, but every attempt is made to get the girls interested in doing so.

I was told that in the winter the women mainly wore men's jackets, with sweaters underneath, when working outside. Women's jackets were found not to give enough room for action. I discussed the jackets the American Standards Association is working on with Miss Foreman.

All of the women wore work-shoes--it would be just impossible to wear anything else--but not all were good ones--some were very loose, and there was a lack of safety shoes.

JM/ml

U. S. Department of Labor
WOMEN'S BUREAU
Washington

Statement for
Miss Robinson's use
in "morale-builders"
July 7, 44
JM

Under the pressure of war conditions, and with the employment in industry of many women normally not so employed, a number of problems have arisen related to community services, recreation, health, child care, and other similar matters. The circumstances of war work--crowded communities, shortage of services, ~~lack of services,~~ lack of time to attend to home and personal needs--have tended to bring together matters that ordinarily are separate. Thus, lack of time for shopping and personal business affects the progress of work in a plant, when many women with home responsibilities are employed. Need for recreation in the limited hours off shift is another such problem. Maintenance of health off the job as well as on, child care, food preparation and eating facilities are still others.

The Women's Bureau believes that it is desirable to maintain certain standards and procedures in the course of solving these industrial-community-personal problems. The following paragraphs list some of the principles we should like to see held to:

1. Problems that are essentially community matters should, as far as possible, be handled by the community. Both plants and workers should cooperate with the community agencies, by indicating in specific terms just what their needs are. This cooperation also creates a very valuable opportunity for the women workers to take part in community activities, as members of the community as well as members of their plant organization or unions.

a. It is prefer~~r~~able that nurseries be established as community projects rather than by the plants. Details of nursery-care problems are dealt with by other government agencies; but the Women's Bureau would point out the inadvisability of exposing the children to the factory area, transportation difficulties, and removal from the community.

b. Recreation projects should be such as to enable the worker to join her family and friends outside the plant in using them. Change from the working environment, and the broader scope of community activities make it advisable to develop recreational facilities on a community rather than a plant basis.

c. Special medical or social services which workers may need for themselves or their families should be obtained from agencies in the community which are equipped and have the trained personnel to give them. Often the personnel director or counselor in the plant will recognize that a worker needs such help, and can refer her to the right agency for it.

2. In some circumstances, because of emergency needs, isolation of a plant from the community, or other factors, it appears desirable for the plant to undertake to supply services ordinarily supplied by the community. The workers themselves should have an opportunity to take part in the organization of these services and to express the needs they are to fulfill.

3. Unions are taking an increasing part in dealing with these problems. Some unions are developing counselling systems of their own, and training women to help workers in obtaining the various personal and home services they need. Other unions are participating in community organizations, bringing to them the interests of the industrial workers in the community. Union-community committees and meetings are springing up. The Women's Bureau believes that this participation should be encouraged.

4. A number of private individuals and organizations have developed physical exercises to be offered to women workers during their rest periods on the job, or to be done at home, or both. It should be an invariable rule that such physical exercises as are offered in the plant are approved by the plant physician and subject to his evaluation.

June 28, 1944

Dr. C. D. Selby
General Motors Corporation
General Motors Building
3044 West Grand Boulevard
Detroit, 2, Michigan

Dear Dr. Selby:

Your letter of June 16 to Mrs. Mettert has been referred to me. Mrs. Mettert has left the Women's Bureau, and I have been asked to carry on her work on our section of the Industrial Medicine volume for The Medical History of the War.

I have been gathering material dealing with the Women's Bureau's activities in this field. This section will follow the lines along which our work is organized. One part is the study of the employment of women in specific industries, and the discussion of the suitability of occupations and working conditions. Such studies of specific industries are based on plant surveys made by field representatives of the Women's Bureau.

A second part of our program is establishing standards for health and safety of women workers. These standards cover such matters as clothing, hours, service facilities, working environment, maternity policy, rest and meal periods, night work, etc.

Over a period of years the Women's Bureau has studied the incidence of accidents and occupational illness among women workers, and has published reports on this subject. This study is continuing.

Another aspect of our work is the development and encouragement of health and safety education programs, in both plants and unions.

Our work is carried on not only by means of published reports, but in large measure as a service to plants, unions, government agencies, other organizations, and individuals who request information on specific problems. Thus, in addition to the work based on our field services, we act as a research organization and clearing-house for information relating to the various problems of employing women in industry.

I am glad to know about the Department of Information under former Surgeon General Magee, and shall look forward to their assistance.

Sincerely yours,

Jennie Mhor,
Associate Industrial Economist

JM/ml

GENERAL MOTORS CORPORATION
GENERAL MOTORS BUILDING
3044 WEST GRAND BOULEVARD
DETROIT 2, MICHIGAN

June 16, 1944

WOMEN'S BUREAU.
JUN [illegible] 1944
DEPARTMENT OF LABOR

Miss Margaret T. Mettert
Women's Bureau
Research Division
U. S. Department of Labor
Washington, D. C.

Dear Miss Mettert:

Sometime ago you graciously agreed to write on the chapter entitled "Activities of the Department of Labor", Section B (In the Women's Bureau) for the volume on Industrial Medicine of The Medical History of the War. Dr. John Fulton, Chairman, has held several interesting meetings of the Committee and the plans for the History are progressing. The editors of the several volumes have reported at these meetings that the authors, who had agreed to do various chapters, were all engaged in collecting source material in preparation for their task. In fact, some seemed to have already commenced their work.

The National Research Council has set up, under former Surgeon General Magee, with the assistance of Dr. Temkin, a Department of Information which is collecting original material and which stands ready to assist you in any way that it can. In the meantime may I suggest that you continue to get your material together, writing a section now and then so that when the war does end you will have it all readily available.

I am glad to announce that Dr. Wm. Gafafer, who did so splendidly as Editor of the "Manual of Industrial Hygiene," has become associated with me in the editorship of the volume on Industrial Medicine, and he will take over the responsibility of collecting the material.

With best regards,

C. D. Selby

C. D. Selby, M.D.

M

Miss Stitt **June 15, 1944**

Jennie Mohr

Some suggestions for the New Jersey women factory inspectors:

1. Physical conditions of work:

Is the physical layout of each job suitable to the size and strength of the woman worker--height of bench, adjustment of levers, proper height of stools if the job is a sitting job, arrangement of work adjusted as much as possible to avoid excessive stretching, lifting, reaching, bending, stooping?

When standing at work is required, are chairs provided on which workers can sit and rest?

If it is possible to do the job alternately standing and sitting, is this arrangement permitted?

2. Service facilities:

Are rest-rooms in proper location so that workers are not too far removed from them to be able to use them during a rest period?

Are rest-rooms properly cleaned, with supplies adequate, hot water and soap of a non-irritating kind? (To be recommended by plant doctor.)

Are eating facilities adequate in size; do they cover all shifts adequately; are they supervised by people who know the requirements of sanitation and nutrition?

Are rest-rooms provided with cots, and women permitted to use them when necessary, so that a short period in which to lie down occasionally can prevent a whole day's absence from work?

Do the toilt and washing facilities satisfy the standard requirements?

3. Safety:

Are proper safety protective devices provided where needed; and especially, do they fit the women? Gloves, head protection, goggles, safety shoes, and face masks must be sized and adjusted to the framework of the wearers--and women aren't built like men.

Are safety clothing requirements based exclusively on safety needs, and closely adhered to where safety requires? Arbitrary imposition of rules not based on a real need are as much a hindrance to good safety practice as failure to follow rules where they are really needed.

Are women who work on jobs making special physical demands selected in terms of their physical qualifications? A woman on a job that is beyond her strength is a hazard to both herself and other workers.

Are women given proper and continuing education in safe work habits and attitudes? This involves not only matters pertaining to performance of the job, use of tools and equipment, proper methods of lifting and handling material, precautions concerning machinery, and similar safe-practices techniques. It involves also education in the risks of the environment, getting around in the plant, and guarding themselves against occupational disease as well as accidents.

4. Health:

Are rest-periods allowed? In addition to a lunch period of enough time to permit the worker to wash up, eat without gulping, and have a few minutes of relaxation, there should be a brief break in the middle of each 4- or 5-hour spell of work. There is a considerable body of evidence that rest-periods are profitable to the employer in increased and more satisfactory production, and to the worker in sustained efficiency and resistance to fatigue.

Are possible health hazards referred to the medical department, and the woman exposed to them, also referred to the medical department in order to prevent the injuries of accidents or disease?

Is there a suitable policy concerning the employment of pregnant women?

Are adjustments made in shifts, day of rest, hours of work, and special leave to fit the special health needs of women or the emergencies of their outside duties?

JM:ml

gm

Miss Anderson, Miss Nienburg, Miss Pidgeon June 12, 1944

Jennie Mohr

Meeting on industrial counseling

At the instigation of Miss Louise Moore of the U. S. Office of Education, a group of about 15 women interested in industrial counseling met Friday evening, June 9th. Among those present were:

Miss Louise Moore	U.S. Office of Education
Miss Augusta Clawson	U.S. Office of Education
Dr. Davis	U.S. Office of Education
Mrs. Trigg	U.S. Office of Education
Mrs. Youell	Virginia State Vocational Education
Miss de Schweintz	War Production Board
Mrs. Mary Curran	War Manpower Commission Training Division
Miss Emma Ward	Maritime Commission
Dr. Milicent Pond	War Department
Miss Kellogg	War Department
Miss Doane	Triumph Explosives, Elkhart
Miss Cornelia Edge	Office of Defense Transportation
Miss Hanson	
Mrs. Zapoleon	Women's Bureau
Jennie Mohr	Women's Bureau

Miss Moore pointed out that many of those present had the job of recommending or advising standards and functions of women counselors; that there were many different ideas of what these recommendations should be; and that both employers and counselors were confused by the variety of opinions and advice given by different people. She raised the question of whether it would not be desirable to get together our ideas and unify them, so that there would be uniformity among this wide group of agencies, and we would be consistent in our recommendations. Everyone seemed to agree with this suggestion.

There were almost as many different ideas about what a "counselor" was as there were people present. On a few points there was more or less general agreement--such as, that a counselor should not have a policeman's function. But the thing that came out clearly in the discussion was that a confusion of several distinct functions existed. The group counseling function, for example, was stressed by some (Miss Ward, for example); the idea was that the important job was getting community services, contacts with nurseries, etc. Others (Miss Kellogg, for example) stressed the individual counseling function--dealing individually with the personal problems. A third function that was mentioned was that of job placement, transfer, hiring, etc.

Another question that came up was the need to know the practical limitations and requirements of counseling, as they are actually found in industry, as contrasted with the theoretical conceptions of counseling. The policy of determining a counselor's functions by examining what counselors actually did was mentioned, and accepted by some. Others pointed out that this was useful only if we had some way of evaluating these duties. Therefore, in addition to knowing what, in practice, we find the counselors doing, we should have some standard for judging which of these activities should be recommended as proper to a counselor.

The need to distinguish between group counseling and individual counseling was brought out, and the need to determine the relative status of these in the job, together with other functions such as placement and transfer work.

Another point discussed was the fact that plants vary widely in their organization, size, etc., and that their needs for counseling would also vary.

Mrs. Trigg described some of her experiences during her recent work in giving training programs to counselors. She was impressed mainly by the fact that many counselors were poorly chosen and had none of the qualifications or understanding that the job required. Others present believed that the counselors they encountered were more adequate to the job.

The existence of the UAW counseling program was mentioned, and its possible implications for the future of counseling in industry.

The question was discussed whether there is a future for counseling in industry, and whether this job was in the process of being established as a professional or near-professional occupation.

One obvious conclusion from this meeting is that there is need for more clear, straight, constructive thinking on this question. Many of the opinions offered were generalizations from too limited experience. The pooling of both opinions and experiences will be of much help to all who deal with the counseling problem.

The meeting adjourned with no clear statement of whether it will be followed up. Dr. Pond made the suggestion that a small committee might work on the preliminary problem of clarifying the questions we are interested in and suggesting methods of handling them. Whether this will be done is not certain, but probably it will be. Both Mrs. Zapoleon and I think that it would be highly desirable for the Women's Bureau to participate in this cooperative activity, since it is closely related to a number of our interests.

JM:ml

34. A new method of applying luminescent paint to instrument dials, developed by Boeing, is claimed to eliminate radium injuries, increase dial production several hundred percent, make unnecessary some special equipment now required, and produce superior glow characteristics. By the new method the indicia are screened on the dial blank using normal thickness white synthetic paint instead of thin phosphorescent paint. While the paint is still wet, it is dusted with powdered luminescent pigment. Excess pigment is removed by vibration, air jet, or suction. Finally, the dial face is coated with a very light coat of clean lacquer and dried. A thicker deposit of pigment may be obtained by screening with lacquer and dusting as before.

By conventional methods, highly skilled workers emboss the indicia with radium paints. Although they are protected from harmful rays by thick glass tops, the workers are permitted to stay at this work only 5 years, but may be affected by radium even before this time.--Wings, June 1944.

INDUSTRIAL WELFARE

27. A special liquid hand soap is helping to prevent dermatitis caused by TNT at a bomb-loading plant operated by the Firestone Tire and Rubber Co. The soap remains red as long as there is TNT on the hands and then turns white, indicating that all TNT has been washed off. If left on the hands, the explosive can cause a dermatitis that leads to internal disorders.--Business Week, June 3, 1944.

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28. By coating wooden degreasing trays with Compar, a vinyl resin derivative developed by Resistoflex Corp., Belleville, N. J., a large government arsenal is reducing a dermatitis hazard associated with degreasing lenses and prisms in trichlorethylene. It was found that the degreasing trays, made of wood because of the shortage of metals, absorbed the solvent, and workers developed dermatitis by handling the trays. The Compar coating renders the trays non-absorptive and therefore safe to handle.--Occupational Hazards, June 1944.

METALS AND METALLURGY

31. A new high-strength aluminum alloy, intended primarily for use in long range bombers and fighters, was announced by Aluminum Co. of America. The new alloy, designated as 75S, is said to contain about 90 percent aluminum, plus magnesium, zinc, a small amount of copper and other elements. Compressive yield strength is 67,000 psi., and when the aluminum is heat-treated and extruded in aircraft wing beams, tensile strength is said to be 88,000 psi. Business Week, June 24, 1944.

METAL WORKING

July 1944

breakdowns. Each of the enzymes acts specifically on one or a small group of fruit juices. For example, Pectinol W clarifies grape juice, grape wine, and apple wines. Pectinol M is utilized for miscellaneous juices and wines such as blackberry, strawberry, raspberry, citrus, and peach. The preparations are based on the discoveries of Dr. J. J. Williaman and Dr. Kertesz of the N. Y. Agricultural Experiment Station at Cornell University.--The Food Packer, June 1944.

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23. A unique machine in operation at the Doughboy Mills, Inc., New Richmond, Wis., is compressing dehydrated food into brick shaped packages for the use of liberated countries. The machine exerts an operating pressure of 1000 pounds per sq. in., has 30 die sets, and produces 108 compressed bricks per minute. Each brick weighs a pound and measures 6x3x2 in. This method of bricking and packaging food is said to save from 25 to 50 percent space in comparison with ordinary packaging methods.--Packaging Parade, June 1944.

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24. Sweet-Tone, a food preservative, manufactured by Rodelle Laboratories of Denver, is claimed to preserve peaches and apples without the

These reports, prepared each month by the staff of the Productivity and Technological Development Division of the Bureau of Labor Statistics, summarize recent changes in processes, materials, and manufacturing techniques as reported in current trade and technical periodicals. Preparation of the "Summaries" started at the end of 1941 as a byproduct of the Division's regular work. At present, the reports cover about 200 selected periodicals each month and accordingly represent a wide selection of current industry developments.

The items presented are short abstracts of articles or notes appearing in the cited periodicals. Brief special reports on matters of current interest, based on a number of sources or on the work of the Division, are also frequently presented at the end of the abstract section.

Miss Anderson and Miss Nienburg May 16, 1944

Jennie Mohr

Visit to the Brooklyn Navy Yard

At the request of Mrs. Victoria Kerwin, woman personnel assistant in the Industrial Relations Division, whom I had met at the American Standards Association meeting, I visited the Brooklyn Navy Yard on Saturday, May 13th.

I talked to the following individuals: Commander Hubble, Head of Personnel; Lt. Miller and Lt. French, in the Office of the Superintendent of Production; Mrs. Kerwin and Miss Nelson, working under Lt. French; Mr. Patternoster, Master of the Electrical Shop; and Mr. Fuller of the Shipfitters' Shop.

This seemed to be a very auspicious moment to have visited the Yard because they are just beginning to put women on ships and had a lot of questions and some ideas, some of which I thought were not very suitable. Main comments concerning the visit are as follows:

I - There is, as is frequently the case, a feud between the Personnel and the Production Departments which makes cooperation between them difficult. Lt. French, in the Office of the Superintendent of Production, has put Miss Nelson into a job which parallels and competes with Mrs. Kerwin's job as woman personnel assistant. They are both working on surveys (presumably but not actually together) to find out what further jobs women can be put on, as the Yard expects to increase considerably its employment of women. The list of jobs women are doing in other shipyards, which was sent to them from the Women's Bureau, has proved to be invaluable as a guide, and also in breaking down some of the resistance to the employment of women in many places. However, I felt that neither of the two women now considering this problem is sufficiently informed to do a very good piece of work on job classifications or analysis.

II - They are just beginning to put women on ships. I believe there are now only 5 working on ships. An indication of the lack of understanding is shown by the fact that Miss Nelson, a pleasant and naive girl, probably very recently graduated from college, made the proposal which was being seriously considered of having a separate gangplank for the women working on shipboard. Her reason was that she had watched the men coming off at the end of the shift and thought they were very pushing and dirty, and was shocked at the idea of women being pushed around by them. I said that I thought if they are going to build a separate gangplank for women they probably would not be able to have good integration of the women on the job. The women would be considered apart from the others and not able to hold their own. I also said that women elsewhere were finding themselves perfectly capable of getting on and off the same gangplank with everyone else and the fewer false distinctions there were made the better.

III - Commander Hubble told me that the machine operators' classification, intermediate between helpers and machinists, was ~~only~~ already in use in the Machine Shop and a similar classification, called by various names, was about to be put into 5 other shops: Electrical, Shipfitting, Sheet Metal, Pipe, and Optical.

IV - I talked with Lt. French and Lt. Miller, the latter being in charge of the training program, about the advisability of having meetings of the lowel levels of supervisors such as leadmen, quartermen, and perhaps foremen, to discuss the introduction of women into the Yards especially on new jobs, and to help them to understand the supervision and training of women. They seemed to take to this idea and I believe it probably will be followed out.

V - There seems to be no very satisfactory placement interview technique. Miss Nelson, who has had a couple of courses in psychological testing, is looking about for mechanical aptitude tests to be introduced, seemed to think that these tests would be an adequate substitute for placement interviews. I suggested that although the tests were frequently very useful and desirable, they should be used as supplementing the interviews and not as a substitute for it, and that if they were used it was very important that the persons handling them should be qualified to interpret and evaluate them.

VI - I visited the ~~shop~~ store which Mrs. Kerwin runs, in which safety clothing is sold to women. They have a large and varied supply of good coveralls, dungarees, blouses, jackets, and caps. Mrs. Kerwin has done a pretty good job on getting the women to wear the proper clothing, and the appearance of most of them in the Yard was very satisfactory. They also have gone out for safety shoes, which are sold in the shoe store in the Yard adjoining this clothing shop. It is interesting that safety shoes are mandatory for the women but not for the men.

VII - I visited the Electrical Shop and talked to its Master, Mr. Patternoster. This is the Shop in which they are expecting to put women onto a great variety of jobs, and from which they are going to place women on the ships. Mr. Patternoster seemed to be especially interested in the utilization of women and to have a very ~~respectful~~ responsive attitude towards them. Mrs. Kerwin says this is much truer of him than of most of the Masters.

cc to Miss Nienburg

JM:ml

Miss Anderson May 16, 1944

Jennie Mohr

Report on New York Visit

I - I have written a separate memorandum on my visit to the Brooklyn Navy Yard because there were many specific items to be mentioned.

II - Sarah Lawrence College - I had an extremely interesting and I think useful session with the work study class at Sarah Lawrence, which is directed by Miss Hewes. There are about 20 students who are working twenty hours a week at a factory making parts for the Signal Corps, including some radar equipment, at Dobbs Ferry. The students had been on the job only a day, but were extremely interested and enthusiastic. I described some of the work of the Women's Bureau in relation to the employment of women in such industries, giving a brief statement of the position of women in industry in order to impress on them the fact that women have always worked in industry, and pointed out some of the questions they would come up against in terms of safety, health, jobs, and the general plant environment. They seemed to be interested, asked quite a number of questions, and showed a considerable seriousness in their attitude. I think that this opportunity to talk over some of the important factors in the employment of women, plus the Women's Bureau literature which they welcomed warmly, will be of some positive use to them in understanding their jobs.

III - I had a long talk with Dr. Sweigard and a briefer talk with Dr. Stack at the New York University Center for Safety Education. Dr. Sweigard is about to start on a study to analyze the fatigue factors in certain operations in the aircraft industry. She has had a great deal of training and experience in what she calls the subject of the body mechanisms, which includes not only posture but physical motions and the general use of the body on a job. Dr. Stack told me she was probably the best equipped women in the country in this field. She expects to go into the Wright Airplane Engine Plant in Patterson, New Jersey, and study specific jobs. I was able to list for her a number of specific jobs which I knew women would probably be doing and which might offer opportunities for studying the question of the best way of doing them from the point of view ~~from~~ of physical effort. If Dr. ~~Stack~~ Sweigard can sell the idea to the medical and personnel departments in the plants, I think it would be a useful program. She is particularly interested to work on problems that the Women's Bureau think are important, and would welcome further suggestions from us. She has some of our literature and I am sending her more. She will write to let us know how this plan is developing.

IV - American Standards Association - There was a meeting of the American Standards Association committee on work clothing, on the subject of outdoor garments for women. I have been trying to get from our agents in the field, and from our records, information on the kinds of jacket that are being used, what the plants and the workers think about them, and what is needed in the way of good outdoor work clothes. On the basis of such information the committee will set up its standards. So far we have got to the point of deciding the general types of jacket that are most useful, and specifications will be developed later.

Before I went to New York I talked to Miss Helen Foreman, of the Baltimore and Ohio Railroad, who has been dealing with this clothing question in relation to the women working on the B&O. She referred me to a New York company that was putting out a jacket she was planning to recommend. In New York I had an interview with Mr. Becker, of the Sterling Co., who makes this jacket, and we discussed problems of making and distributing work clothing so that it would reach the women who needed it, when they needed it. It turned out that Mr. Becker was invited to come onto the American Standards Association committee, so I was especially glad to have a chance to talk to him about work clothing in terms in which the Women's Bureau is interested in it.

I am a little concerned about the fact that the American Standards Association committee seems to be overbalanced by members who are manufacturers and primarily concerned with manufacturing problems. I find myself constantly attempting to put more emphasis on safety requirements and workers' needs than some of the other members do.

The setting up of these standards is considered primarily as a kind of insurance policy, in case of shortages of material and of garments. The War Labor Board will use these specifications as a basis for allocating materials to manufacturers; that is, they will allocate such material to those who will make the clothes in accordance with the American Standards Association specifications. For this reason, I think it is important to have standards that will include the best safety features that we can devise.

JM:ml

Miss Nienburg May 4, 1944

Jennie Mohr

Report on Ken-Rad Tube and Lamp Corp.

In checking over the hazards found in other radio and electrical plants by agents, I find a few hazards, some of which are similar to some mentioned by Miss Bagwell, although in no report did I find comments on as obviously poor working conditions except in the Condenser Corporation at South Plainfield, N.J.

1. Fumes: There is one report of fumes, from oils and fluids used in cleaning and polishing quartz crystals, and one report of fumes from soldering. In both cases, local exhaust hoods should be used at the point of origin of the fumes, in accordance with the standard practice. Fans, which are reported to be used in one plant, are less desirable for this purpose.

2. Dermatitis: Probably the rashes complained of come from the materials handled in the soldering process, and not from the fumes. Reports on other firms, e.g. Lukas-Harold, Allis-Chalmers in Milwaukee, and Condenser Corp., also indicate dermatitis. It is temporary and has not resulted in permanent skin injuries. Recommendations on this point should include the use of protective cream recommended by the doctor, wearing gloves, and careful cleansing of the hands and arms. Care should be taken to see that the soap used is not in itself an irritant--some harsh soaps can cause a worse dermatitis than the materials used on the job. Some people (men and women alike) have skins so sensitive to such irritants that they should be transferred from the job. Sometimes transferring the women for a few weeks may be sufficient. People have been known to build up some degree of immunity. The major protection for those exposed lies in (a) attempting to substitute non-irritating for irritating materials if possible; (b) using protective creams of the right sort or gloves where feasible; (c) especially, careful cleansing of the hands and arms.

3. The women complain of being burnt by hot tubes. The agent reports that at the National Union Radio Corp. in Newark, women suffered from excessive heat in the top sealing process. They wore asbestos gloves, however. This may be the answer for Miss Bagwell; such gloves would be much more adequate than canvas gloves.

4. I've never heard the phrase "heat balls" in connection with welding. I presume it means the small particles of hot metal that sometimes do strike the glasses. Practically the only welding done would be very light, spot welding. Certainly if any welding is done at all, the worker must wear the proper goggles, that will protect both her eyes and her glasses. Anyone working near enough to be exposed, whether welding or not, should also wear goggles.

It seems more likely hat the women were referring to soldering rather than welding. Proper instruction in the use of the soldering iron should prevent the drops of hot solder from causing such damage, if that is actually the source of the trouble.

5. Exploding tubes: Only one other plant report indicated this hazard--National Union Radio Corporation. The agent said there was "possible danger of slight explosion from hydrogen" on the top sealing operation. I have been unable to find any statement about this hazard in discussions of this occupation.

With regard to the general working conditions, I should suggest that Miss Bagwell recommend the following to the Union, in addition to the points listed above:

1. Improvement of the general ventilation system, as well as installation of exhaust hoods at points where fumes are generated.

2. Adjustment of tables to the correct heaight for the women.

8 3. Use of posture chairs, Several factories are now making factory chairs, some of them suitably adjustable. Suggest the recommendations made in the posture bulletin.

JM:ml

Miss Nienburg April 15, 1944

Jennie Mohr

1. American Standards Association
2. Brooklyn Navy Yard

1. I attended a meeting yesterday of the American Standards Association committee on women's work clothes. You may be interested to know that, largely on the basis of Women's Bureau data about the extent to which women are employed in outdoor jobs, it was decided to set up specifications for an outdoor garment for women workers. Lt. Com. Twining of the Brooklyn Navy Yard thought it would be essential to have such specifications available, as he believe women would continue to be employed in these jobs for sometime and shortages of material will make it necessary for the WPB to establish priorities. He wants these standards as a basis for making such allocations.

We are anxious to get any information we can about the practical experience plants are having with specific outdoor garments. Do you suppose it would be feasible to ask the field people to inquire about this, and if possible to get samples of jackets used in plants and comments from the plants as to their suitability? Or are there no field people going into plants where outdoor work is being done?

2. Lt. Com. Twining brought to the meeting Mrs. Victoria Kerwin, the woman personnel assistant at the Brooklyn Yard. She told me a number of interesting facts:

(a) She said that as a result of Mrs. Newman's and Mrs. Wright's visit to the Yard, it was decided to get a woman personnel assistant. I don't know ~~as~~ that this is ~~exact,~~ correct as the schedule indicates that the Yard had already thought of the possibility. But apparently our representatives gave them the final push. Mrs. Kerwin was in the shipfitter's shop at the time and was asked to take over the job.

(b) She says that the Yard is seriously considering putting in a new classification called helper-trainee, female. ~~That will do~~ They have done away with the mechanic~~al~~-learner classification entirely. Apparently they think that this new classification will get around what they feel are restrictions in Civil Service requirements making it impossible to use aptitude tests, which they do want to use.* We had quite a long talk about this question. I pointed out the undesirability of having a sex classification. She agreed, but said, "You know the Navy." I asked if they used any classification similar to that of machine operator and she said no, she wished they did. After dropping the mechanical learner classification they took women on for a short while as classified laborers, but are dropping this too. All women are now being hired as helper trainees.

She said they were hiring a large number of women now and expected to hire more. They are getting what she called a "much higher class of women." They are the ones who have been let out of Sperry's, Brewsters, and other nearby places. Most of them are therefore experienced or ~~with~~ have had vocational training. The women at the Brooklyn Yard are now working 60 hours a week.

* My impression was that Mrs K was not herself too well informed on this.

(c) Mrs. Kerwin is very anxious to increase the types and number of jobs in which women can be employed. She would like very much to have a list of all the occupations in which we found women in the shipyards. She says that if she can show this to prove to the shop superintendent that women actually have been doing these, it will be much easier to introduce women on them and to break down the shop master's resistance. Would it be possible without waiting for the shipyard report to come out, to send her a copy of the chart showing the jobs and the departments? I think it would be of enormous assistance to her.

JM:ml

Industrial Safety

ADVANCE RELEASE -------------- ADVANCE RELEASE

Fitzgerald-Labor 24 OWI-3050

UNITED STATES DEPARTMENT OF LABOR

ADVANCE RELEASE:
For Sunday Papers,
April 2, 1944.

Cleared and Issued
Through Facilities of the
Office of War Information

Women are more likely than men to be careful around machinery and observant of safety rules and regulations, Mary Anderson, director of the Women's Bureau of the United States Department of Labor, said today.

Most industrial plants using women for the first time because of wartime expansion have found that their fears concerning women on new machinery were unwarranted, Miss Anderson declared.

"In one typical new war plant, in which both men and women were new to the work, 60 per cent of the more than 20,000 employees were women, Miss Anderson said, "During the entire year of 1942 these women accounted for only one-third of the total number of compensated injuries - and they were on substantially the same work as men. Approximately one-fourth of the minor injuries were attributed to women.

"In one aircraft plant the accident rate for 11 months of 1943 was almost identical, 5.51 per 1,000 men and 5.52 per 1,000 women. When increases in accidents to women are reported they are generally found to be due to increases in the employment of inexperienced workers, to improper guarding of machines or to lack of safety education. It is also true that many such increases in accident frequency rates result from production speed-ups."

Miss Anderson declared that safety men in steel plants recently surveyed by the Women's Bureau had reported women to be safe workers in what is generally conceded to be a harzardous industry.

"Available statistics really show very little about the relative safety risk of men and women," Miss Anderson said, "and Dr. Milton H. Kronenberg, chief of the Industrial Hygiene Division of the Illinois Department of Public Health, so stated in a recent issue of the Journal of the American Medical Association. Women are inherently more careful than men, the doctor asserted, and this should be of value in safety. When they are carefully selected for employment, are sufficiently trained in safety and for the job, and are not subject to great physical exertion, he noted, their safety record should be as good as if not better than that of men.

"Any figures on accident rates by sex must be qualified. If the accident rate is higher for women than for men it may be because they are new at the job while the men have been working for years on the process. If the rate is higher for men it may be because they are on jobs where the exposure to danger is greater. Any studies, for statistical purposes, must be made of men and women on comparable jobs and with comparable work histories. It is obvious that such studies are extremely difficult to make."

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END OF ADVANCE RELEASE: For SUNDAY Papers, April 2, 1944.

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Industrial Safety

Saunders - 76538 WPB-LD-284

WAR PRODUCTION BOARD

For Immediate Release
Wednesday, January 26, 1944

Cleared and Issued
Through Facilities of the
Office of War Information

The War Production Board and the Department of Labor today announced an operating agreement through which the two agencies will pool their forces to reduce the toll of industrial accidents that annually result in a loss of life six times as great as the nation sustained at Pearl Harbor.

In announcing the anti-accident agreement, WPB Chairman Donald M. Nelson said:

"In 1943, 56,800,000 man-days were lost from essential production and 18,400 workers died because of industrial accidents. This vital blow at America's war production goes unrecognized by too many of us who were shocked into instant action by the loss of 3,303 lives among our armed forces at Pearl Harbor. Management, labor and government must eliminate the menace of industrial accidents -- which yearly strike down a division of our soldiers of production. Such a defeat on the production line cripples our war effort just as certainly as a major military defeat in the field."

The agreement between the WPB Office of Labor Production and the Labor Department's Division of Labor Standards represents a further step in carrying out the comprehensive anti-accident campaign launched recently by WPB, in cooperation with various federal agencies, labor unions, industrial groups, and other private organizations. Among the private groups participating in the campaign are the American Federation of Labor, the Congress of Industrial Organizations, the U.S. Chamber of Commerce, the National Association of Manufacturers, and the National Safety Council.

The administration of the anti-accident campaign within WPB is being handled by the Industrial Health and Safety Section of the Office of Labor Production, headed by WPB Vice Chairman Joseph D. Keenan.

The agreement between WPB and the Labor Department will facilitate utilization by WPB of the nation-wide field staff and facilities of the Division of Labor Standards. The staff of Labor Standards consists of 22 full-time safety engineers and 600 volunteer special agents.

Under the terms of the agreement, the Industrial Health and Safety Section of the WPB Labor Production Office will carry out such functions as follows:

Receive reports, suggestions, and complaints dealing with the industrial hygiene and the safety of war workers. (Sources of such data include labor-management committees, labor union committees on health and safety, and regional offices of WPB.)

Act as a central clearing house in the War Production Board to check and refer the above data for remedial action by the proper Federal agencies operating in the field of health and safety.

(over)

Miss Williams 12/27/45

Jennie Mohr Jm

I should like to call Miss Miller's attention to these questions before she leaves for London:

1. To what extent does the National Health Program in England cover the needs of workers for medical services; are the unions carrying on health-insurance or medical-service plans?

2. The Industrial Health Research Board has published a fairly limited current study of sickness absence among women in industry. Are more data available than those published in Report 86 of the Medical Research Council and the supplementary paper in the British Journal of Industrial Medicine of April 1945? Are studies comparable to this being made of total absences among women, or among women and men?

3. Has a maternity policy for women in industry been developed?

4. Is there information on the incidence of occupational diseases among women and men?

5. What has been the effect of the introduction of factory canteens on the health of the workers; will these canteens be continued in peace time?

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Mohr

DATE: December 20, 1945

FROM : Constance Williams CW

SUBJECT:

Thank you very much for your notes on the committee meeting of Safety and Health and Workmen's Compensation at the Secretary's conference. I am sending the report on to Miss Miller and Miss Plunkett for their information, to be returned to me.

Mohr

Miss Williams

Jennie Mohr

Meeting of Committee on Safety and Health and Workmen's Compensation of the General Conference on Labor Legislation

As requested, I attended this meeting on the afternoon of Wednesday, December 5. About 20 or 25 representatives of State Labor Departments, unions, Workmen's Compensation Boards were present, and also Mr. Blake, Mr. Dawson, and Miss Buchanan of Labor Standards and Mr. Kossoris of the Bureau of Labor Statistics. Mr. Zimmer was ill and could not come. The meeting was chaired by Mr. Paul McCune of Arkansas.

A number of resolutions were passed and referred to the Resolutions Committee. They were not put into final formulation, but "suggestions" were adopted and the wording of the resolutions was left to Miss Buchanan. The subjects discussed were as follows:

1. Future Aid to State Inspection Services.

   This was one of the two subjects on which there was considerable discussion. The resolution presented at the morning meeting favoring the Federal Aid Bill was read and accepted. Considerable emphasis was put on the need to safeguard the sovereign rights of States. A few individuals, notably the Labor Department representative from Indiana, however, emphasized the need for Federal aid and the desirability of using it. They considered the question of State sovereignity to be irrelevant to the development of good safety practices in industry. Mr. Wrabetz of Wisconsin objected to this position. He objected also to the suggestion made by the Indiana and the Idaho members that there should be set up a Federal Inspection Service independent of local authorities, somewhat similar to the Mine Inspection Service.

2. Compulsory State Workmen's Compensation Funds

   Mr. Scharrenberg of California urged the consideration of this subject. There was a good deal of discussion about the desirability of setting up compulsory exclusive State funds. It was felt by a number of members that a State fund can be really effective only if it is exclusive and compulsory. It was pointed out by Mr. Scharrenberg that where there were State funds, all of the premiums go to pay benefits for the injured workman, whereas under the system of insurance carriers only one-third of the amount paid in goes to the workers. After considerable discussion the motion was made and carried to recommend compulsory and exclusive State funds.

3. The question of need for funds to continue wartime safety drives raised little opposition. It was pointed out that the program developed by the Committee for the Conservation of Manpower in War Industries now is at an end, as that was a wartime measure only. The members voted to include a recommendation for the continuation of such a program to be a part of the first recommendation relating to acceptance of Federal aid.

4. Four resolutions were passed dealing with the participation of unions in safety drives, safety training courses for union representatives, joint labor management safety committees, and the development of union safety organizations. These, all, in fact, were part of the wartime program of the Committee for Conservation of Manpower. There was no disagreement about the desirability of continuing these activities. No indication was given, however, of ways in which such programs would be financed or administered. It was suggested, however, that the Division of Labor Standards indicate ways in which a satisfactory program for union and educational groups could be continued. Some of the States have programs of their own, such as the series of safety courses in vocational training schools in Wisconsin.

5. There was a general resolution at the end to the effect that there should be developed close cooperation between labor and State safety and health programs.

JM:sl

Miss Miller November 28, 1945

Constance Williams and Jennie Mohr

National Safety Council booklet on home safety

The enclosed preliminary copy of a home safety booklet was sent by the National Safety Council with the request that the Women's Bureau lend its name as a sponsor. This appears to be a very good bulletin and the Women's Bureau could well give its name as sponsor. We have never gone very much into the problems of home safety, but have always cooperated with the National Safety Council in spite of the fact that we disagree with them on some items and procedures.

We understand that the Children's Bureau has also been asked to act as sponsor to the booklet, and will agree to do sol

JM/ml

Miss Williams November 13, 1945

Jennie Mohr

After the staff meeting on Friday afternoon, Mrs. Nason asked me if I would give her a brief statement about the maternity study which could be forwarded to the regional people. She thought that they would be interested to know of the existence of this study, and perhaps might have on hand some information that would be useful for me. I have, therefore, written the enclosed memorandum to Mrs. Na~~n~~son, which, if you approve of it, she will forward to the regional people.

JM/ml

Mrs. Nason November 15, 1945

Jennie Mohr

Study of maternity benefits in industry

The question of the importance of maternity in the industrial employment of women has been repeatedly raised.

Very little information is available, however, in regard to the financial and medical assistance available to working women during pregnancy. Although a number of agencies have made studies of the number of industrial health-insurance or medical-care plans and their provisions, but few have indicated the extent to which materity benefits are offered, and none have shown the extent to which they are used.

The Women's Bureau is, therefore, undertaking a study of the maternity benefits provided for women workers under such plans. Data are being obtained on claims for maternity benefits made under selected health-insurance plans in union agreements. Individual records of such claims are examined, to determine the proportion of eligible women workers who make the claims, the amount of money or other benefits received, the amount of time and wages lost during maternity leave, and the cost of the insurance to the women. It is hoped to continue the study with an examination of other types of maternity benefits, such as those provided by company health-insurance plans and medical-care plans, in order to be able to evaluate the various ways in which economic protection and medical care are provided for working women during maternity.

Relatively few unions have information in their national offices on the contracts signed by locals of the union which include health-insurance plans. Any information the regional representatives may have about the existence of health-insurance plans in union agreements in their region, the number of workers and the number of women workers covered, and the length of time the insurance plans have been in effect, would be very welcome. We should also like to secure any booklets the regional representatives can send us describing union-management or company health-insurance plans, or medical care plans.

JM/CW/ml

Miss Miller October 1, 1945

Jennie Mohr

Purpose of trip to New York, New Jersey,
and Philadelphia, September 27, 1945

Miss Williams has asked me to prepare for you the enclosed statement of the purpose of my trip on September 27th to New York, New Jersey, and Philadelphia in connection with the study of maternity benefits.

The study, as reported earlier to you, is designed to obtain factual material on the extent of pregnancy among working women and the kinds of medical and financial help that are available to them. After this material is obtained, it would be desirable to develop~~e~~, in cooperation with the Children's Bureau, a follow-up study to determine how useful~~l~~ the available benefits are, and to show what further security is needed, to be provided through social insurance or other means.

JM/cje

October 1, 1945

Statement of Purpose of Trip

to New York, New Jersey, and Philadelphia, September 27, 1945

1. The purpose of the present study of maternity benefits available to working women is to discover:

    a. How extensive the problem of maternity is among working women.
    b. What kinds of benefits, by way of cash or medical services, are available to them
    c. What specific benefits they actually receive.
    d. How much time is lost from work because of maternity.
    e. How much the benefits cost them.

2. Benefits provided by health insurance plans in union contracts have been selected as the first source of information. Records of maternity benefits paid under such plans are to be transcribed on to a schedule developed for this purpose. These records are to be obtained from the office administering the plan, either union, plant, or insurance company.

3. The present trip is made for the purpose of obtaining such records. Four plans were selected by Miss Williams, Miss Erickson, and myself. Records of women covered by these plans who have taken maternity benefits will be examined and reported on the schedules. From the schedules, a study can be made of the items listed in paragraph 1 above, as they pertain to these particular women. Selection of these plans is subject to change according to the availability of records.

4. At the request of Mrs. Merriam of the Social Security Board, information will also be obtained on the extent to which analyses of insurance benefits are being made by unions, or whether data for such analyses are obtainable; and the extent to which unions have or want statistical studies of the uses of their health insurance plans.

5. In order to have a more complete picture of the ways in which financial and medical protection are provided for working women who have children, health programs other than insurance plans, such as medical service plans, should later be examined. This would be the next step in the study of maternity benefits ~~that~~ but is not included ~~for~~ in the plan ~~of~~ for the present trip.

Miss Williams 26 Sept. 1945

Jennie Mohr

Memorandum on absenteeism.

1. The March 1943 report referred to, I believe, is the Women's Bureau report, not BLS. It refers to BLS and to the other agencies mentioned in the memorandum.

2. The April 1944 report is also Women's Bureau. It refers to a report by BLS on absenteeism, and the figures given come from BLS; but the BLS report was not issued in April 1944.

3. The reference to 128 industries should be changed to 28 industries.

4. It is correct to say 6.5 percent. Absenteeism is measured by the percent of scheduled working hours lost, or by the percent of scheduled persons not working.

5. In the 3d paragraph, the phrase should be "accident frequency and severity is lower in women ...."

6. The Public Health Report referred to in the last paragraph was summarized in the July News Letter; but it has now come out as a full report, in Public Health Reports, Vol. 60, No. 36, Sept. 7, 1945. I believe this would be a better reference, as the News Letter gives only a brief summary. Also, I would suggest that it not be described as "confirming" the BLS findings, since the P.H. Report is one of a long-continuing series, over many years, and much more comprehensivek in scope than the BLS data.

7. The workd "effecting" in the insert penned at the bottom~~e~~ of the page should be "affecting".

8. In the covering letter, in referring, paragraph 2, to heavy work, wouldn't it be desirable to indicate that this factor is irrelevant in many industries and occupations, and therefore should not be considered in a general analysis of the value of the work of men and women?

gm

Miss Williams September 21, 1945

Jennie Mohr

Visits of representatives of the Transport Workers Union, Local 101 (CIO)

Mr. Thomas Mannix, Trustee of the Union, Mr. Barry and Mrs. Loselle called on Tuesday, September 18th, to consult me about sickness absenteeism among women workers. Their Local, the Utility Division, includes both production and office workers. They are experiencing difficulty in getting regular wage raises on the merit rating system for some of their employees because of what the company considered excessive sickness absenteeism. They wanted information on how much sickness absenteeism is customary in industry, to determine whether the charge of excessive absenteeism was justified. I gave them information on this subject.

They were also interested in questions pertaining to job classification for determination of wage rates. At your request I introduced them to Miss Erickson, who discussed this matter with them, and then referred them to the Bureau of Labor Statistics.

JM/nl

JM

Miss Miller May 23, 1945

Jennie Mohr

Monthly Meeting of the Departmental Safety Committee

This is to report a regular monthly meeting of the Departmental Safety Committee. Matters discussed were:

1. The development of a safety program for field offices of the Department of Labor. Plans have been made for organizing such a program centered in the field offices of Wage-Hour, who have most of the people in the field and also most of the accidents in the field. The program will include the selection of a person trained in safety work to do safety inspection of departmental offices.

2. Problem of first-aid stations for all ~~eight~~ buildings housing Labor Department people was discussed. In Washington such stations are being established and will be under the general care of the Public Health Service, who have charge of the first-aid station in this building. It is expected that they will also develop a program for the field, but this is not definite.

3. The Federal Interdepartmental Safety Committee has prepared material for a pamphlet on office hazards, to be used by government employees. Steps will be taken to have this published for distribution by our Safety Committee to employees in the Labor Department. It is expected that other government agencies will also use the pamphlet. The FISC is preparing other pamphlets, one a safety manual and one on safety organization, which it is hoped will be published for the use of all federal agencies.

JM/ml

JM

Miss Miller May 22, 1945

Alice Angus and Jennie Mohr

We have examined this material, which is Dr. Greenburg's follow-up on his agreement to re-evaluate the problems of special susceptibility of women to industrial hazards and related protective legislation, for use in the bulletin on State laws.

Before replying to Dr. Greenburg, we should like very much to get your opinion on some questions the material raises. Do you believe that this material gives us any of the information we asked for, or actually re-evaluates the problem? It gives a listing of a few existing laws in the States, and laws in Great Britain, Germany and France, dated variously from 1905 to 1932. We wonder if this information, which we already had, is relevant for this bulletin.

The first page contains two general statements about the advisability of protecting women against weight lifting injuries and against poisons. Do you think that it actually can be used, in view of the fact that it gives no estimate of the extent to which such exposures are actually harmful, or of the extent to which laws should go in dealing with them?

Dr. Greenburg has asked for Miss Mohr's views about what in this material is desirable to publish, but before he is answered we would appreciate having a brief talk with you about it.

Miss Miller March 23, 1945

Jennie Mohr

Conference with the Division of Statistical Standards

I attended a meeting on Wednesday afternoon to discuss the proposed breakdown of the Bureau of Labor Statistics accident survey to give data for minors and for women. Miss Martin and Mr. Linnenberg were there from the Division of Statistical Standards; Mr. Schwartz, Miss Noll, and Mr. Homan from the Children's Bureau; and Mr. Max Kossoris of the Bureau of Labor Statistics.

The purpose of the conference was to decide whether BLS would be permitted to revise their schedule to show the number of accidents, extent of disability, and regularly scheduled hours of work by sex and for minors. This survey covers about 14,000 plants.

The Children's Bureau indicated their use for such a breakdown in terms of their hazardous occupation orders and their recommendations for the employment of minors. I pointed out the limitation of available material on accidents to women (mostly workmen's compensation reports), the importance of knowing the character of women's accident experience in relation to their employment in specific industries, and the usefulness of such information in relation to State legislation concerning regulation of employment of women in certain industries. It is Mr. Kossoris' desire to redistribute his sample (40 percent of total industry) to put it on a State basis, so that material will be available by State.

Mr. Linnenberg told us he would let us know in a few days what decision was made. This morning Miss Noll of the Children's Bureau called me up to say that she had heard that the Children's Bureau request was going to be granted. I presume this means that the Women's Bureau request also will be granted, but I have not yet heard directly.

JM/al

Mar 24; I have unofficial telephoned information from BLS that the Womens Bureau request is also granted.

Miss Miller March 19, 1945

Jennie Mohr

Request from the Women's Bureau for sex breakdown of accident statistics from the Bureau of Labor Statistics Survey

Mr. Linnenberg of the Division of statistical Standards telephoned to ask me to come to an informal meeting in his office to discuss the request made to Mr. Hinrichs on January 11th for a sex breakdown of the quarterly accident survey material gathered by the Bureau of Labor Statistics. Similar request for breakdown for minors was made at the same time by the Children's Bureau.

I told Mr. Linnenberg I would be glad to come on Wednesday afternoon and explain what use the Women's Bureau makes of statistics on accidents to women and why we requested this material from the Bureau of Labor Statistics.

JM/ml

Miss Miller March 23, 1945

Jennie Mohr

Conference with Mr. Blixen of Uruguay and Mr. Figueroa of Chile

At the request of Miss Gooden of the Division of Labor Standards, I had a conference with these two members of the South American group who were visiting State Labor Departments. They had come in late and had not had an opportunity to visit the Women's Bureau. They are now on their way back to South America.

Both are them are connected with the State funds of their respective countries, dealing mainly with workmen's compensation problems, occupational diseases, and rehabilitation. They are not in the Departments of Labor.

They wanted to know what the Women's Bureau did in general and particularly in the field of safety and health. I gave them a brief outline of the different kinds of subjects the Women's Bureau concerned itself with, and gave them some representative literature. They most of the time discussed safety and health problems, particularly in relation to women. They were very much interested in the maternity policy of the Bureau. Mr. Blixen was particularly interested to have a summary of existing State laws relating to the employment of women, and I gave him a set of the mimeographed sheets. He said he would pass them on to the two women members of the Legislature.

JM/ml

Please return to J Mohr

Miss Miller March 17, 1945

Jennie Mohr

Meeting of Labor Commissioners to discuss Norton Bill, providing Federal grants-in-aid to State labor departments for health and safety work.

Since there will be a complete transcript of the discussion, I shall summarize here only the major points that were taken up, opinions expressed, and action decided on.

(1) The meeting was called at the request of Mrs. Norton to allow opportunity for the Department of Labor to discuss with state labor law administrators details of the bill and to iron out differences of opinion that might affect its operation. Those taking a principle part in the discussion in addition to the Division of Labor Standards were: Mr. Wrabetz, Wisconsin; Mr. Moore, Ohio; Mr. Satler, West Virginia; Mr. Gamble, South Carolina; Mr. Shuford, North Carolina; Mr. Moriarty, Massachusetts; Mr. Chestnut, Pennsylvania; Mr. Curran, Indiana; Mr. Jacobs, Tenn. Mr. Durkin and Mr. Hines of the AF of L, and Mr. Gibson and Mr. Kerry of the CIO. Also present were Miss Longstreet of New York (Deputy Commissioner), Mr. Enniss of Connecticut, and two other members of the Massachusetts Department of Labor.

~~(2)~~ States Rights. The discussion about the bill centered mainly on two questions: states rights and Public Health ~~Department.~~

Mr. Wrabetz and Mr. Chestnut were in opposition to the bill. Mr. Wrabetz particularly emphasized the fear that such a bill would mean the federalization first of safety and then of all other laws. He felt it implied a federal check on how his people were doing the job. Mr. Wrabetz pointed out that at the October meeting of the International Association of Governmental Labor Officials a resolution opposing the bill was passed. There seemed to be in his mind a confusion between the setting up of national standards and making recommendations for techniques in dealing with health and safety problems, on the one hand, and legal state regulations on the other.

He also indicated the fear that if federal funds were given for safety and health work in a state, the state legislature would cut down their own appropriation for this work. The fear was also expressed by other members and it was decided that the bill should include some provision to the effect that such federal funds must not be taken at the expense of state appropriations.

Mr. Wrabetz was in favor of a specified sum, say $30,000, to be given to each state regardless of any conditions, their need, size, population, or program. Further funds could be allocated for specific projects. This suggestion was not favorably received by the other commissioners, who believed that it was too unrelated to the actual needs of the ~~specific~~ individual states.

Mr. Gibson, Mr. Hines, Mr. Durkin, Mr. Gamble, and others pointed out that the states actually do need federal aid in developing safety and health work. Mr. Sattler said that since there was no compulsion to take the funds, states that did not want or need them would not have to take them. Mr. Hines pointed out that if states could actually do the job such a bill would be unnecessary. Mr. Moriarty remarked that if it was a question of states rights versus the worker, he though states rights should be sacrificed.

Mr. Gibson pointed out that there are in many States, departments other than Labor, including Wisconsin, that take federal funds without finding themselves swallowed up by federal agencies.

(3) Public Health. There was extremely little expression of a hope, expectation, or desire, to cooperate with the Public Health Service in its comparable relationship to state departments of health. The fear was generally expressed that if we didn't get this bill passed, state health departments would usurp not only the industrial health but other functions of labor departments, including right of entry and enforcement of regulations. There was some indication that in some states a degree of cooperation was achieved with the Health Department but the general feeling was that the question of who should take care of industrial health was a matter of either-or, not both-and. Mr. Chestnut said "How do you expect Congress to pass a law giving money to one agency to promote a dog fight with another agency to which they have already given funds for the same purpose?" Mr. Zimmer pointed out that there is a clause in the bill to the effect that "the available services and facilities of public health authorities in the field of industrial hygiene shall be utilized."

(4) Action Taken. It was finally decided that a resolution should be signed to the effect that those present favored the bill and urge Congress to adopt it. At this point Mr. Wrabetz left, saying that he was not in sympathy. Mr. Chestnut had left a little earlier. Mr. Moriarty pointed out that those labor commissioners not present should have a chance to express their opinion. Mr. Zimmer suggested that the resolution should be circulated among the absent commissioners; those favoring could sign it, and those opposed would not sign it. He also suggested that instead of sending a transcript of the entire discussion along with the resolutions for circulation, he would have a brief summary made.

It was agreed that Mr. Hines and Mr. Durkin would take the resolution with the signatures of those present to Mrs. Norton on Monday morning. Those present signing the resolution were designated as a committee to represent the labor commissioners.

JM:sl

Miss Miller March 10, 1945

Jennie Mohr

If and when further work is done on the question of the migrant farm worker, it may be useful to know of the Public Health program for medical services for migratory farm workers. The program, Federally subsidized and largely under the jurisdiction of War Foods Administration, is activated through a series of Agricultural Workers Health and Medical Associations. It has been developed by the U.S. Public Health Service and is described in detail in a recent Report of the U.S. Public Health Service. Many of the problems which this report discusses were found both in Mrs. Sater's study in New Jersey and my cooperative surveys with the N.J. State Department of Health.

JM/ml

Jm

Miss Miller March 5, 1945

Jennie Mohr

When Miss Williams and I drafted the letter from the Secretary to Mr. Krug on the American Standards Association clothing standards, Miss Williams thought the ASA should get a copy of it. Since Secretary Perkins has now sent the letter, I have drafted the enclosed letter for Dr. Agnew, Secretary of the ASA. Do you approve of sending it?

JM/ml

Mohr

FEDERAL SECURITY AGENCY
U. S. PUBLIC HEALTH SERVICE
WASHINGTON 14
(BETHESDA STATION)

IN REPLYING
ADDRESS THE SURGEON GENERAL
U. S. PUBLIC HEALTH SERVICE

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

WOMEN'S BUREAU
MAR 2 1945
DEPARTMENT OF LABOR

February 28, 1945

Miss Jennie Mohr
Women's Bureau
Research Division
U. S. Department of Labor
Washington, D. C.

Dear Miss Mohr:

We are enclosing herewith a copy of a memorandum received from the Chairman of the Subcommittee on Historical Records informing us of the abandonment of the projected NRC Medical History of the War. We very much regret this action.

It is hoped that we may be able to salvage much of the material thusfar prepared for the Industrial Medicine volume, and when further details become available we shall write again.

Your continued interest is deeply appreciated.

By direction, Chief of Division.

Sincerely yours,

W. M. Gafafer

C. D. Selby & W. M. Gafafer, Editors
Industrial Medicine

wmg:ltl
Enclosure

Return to J Mohr

Miss Miller February 28, 1945

Jennie Mohr

Talk given by Dr. Anna Baetjer at meeting of local branch of American Industrial Hygiene Association.

A number of Women's Bureau people went to hear Dr. Baetjer on February 27th at 8 p.m. It was very good, well organized, dynamic and informative. She confined herself to the subject of what we know as facts and what are opinions relating to the capacities and susceptibilities of women in industry in terms of health. Her talk, which was largely an evaluation of the literature available on the subject, covered mainly the following:

1. Principal physical differences between men and women related to strength. She pointed out that strength is not correlated with weight and therefore it is fallacious to assign women to jobs requiring greater strength merely because they are heavy or husky. She also pointed out that it was not valid to establish maximum loads for lifting on the basis of percentage of body weight, since strength and weight are not correlated.

2. The fatigue experienced by women in industry is not mainly caused by body muscles or oxygen lack, but by other factors such as the operations of the nervous system, and outside responsibilities which take much of the woman's time and energy. She said that if women do fatigue more readily than men it is not because of physical reasons.

3. She pointed out that susceptibility to strain and stress is common to both men and women, and so far as is known women are not more susceptible. For example, she spoke of the incidence of hernia, which is much greater in men than in women.

4. She mentioned the problem of hours of work and the effect of the length of working time on both health of women and their output. She pointed out that most definitive studies on this subject related to especially long hours, and indicated clearly that a working week of more than, say, 55 hours was definitely shown to result in a decrease in productivity. Although there is no clear evidence about the effect of a week shorter than 55 hours (for example, the difference between a 48- and 54-hour week), nevertheless it is clearly desirable to establish standards such as have been set, of 48 hours rather than a longer work week.

5. In discussing occupational diseases, Dr. Baetjer went to some length to describe what is known about the comparative effects on women of various toxic substances such as lead, benzol, TNT, and so forth. She showed that none of the available studies actually indicate greater susceptibility of women than of men to these substances. They do not even indicate, she said, that pregnant

women are "more susceptible" than other women. But she pointed out that the same disease may have considerably worse consequences because of present or future maternity. For example, lead may be stored in the body for some time, even though exposure ceases. Though we cannot distinguish in terms of susceptibility it is nevertheless very important to protect women and their children against the consequences of exposure.

Although evidence is not very complete, there is some indication that not more than 10 percent of industrial women workers actually take time off for dysmenorrhea. Data obtained by Dr. Gafafer indicate approximately 300 days per 1,000 women per year lost for this reason. There is a complete lack of scientific evidence of any diminishing of ability to work during the menstrual period.

6. A brief discussion was given of the occurrence of accidents to women in industry, and Dr. Baetjer mentioned a number of studies which indicate that women are not particularly more susceptible to accidents than men. She pointed out that differences in types of accidents, such as the prevalence of falls among women, may be an indication rather of exposure to specific hazards than any particular susceptibility.

7. It was pointed out that the sickness rate for women is actually greater than that for men. The frequency of illness is greater among women and the total time lost because of illness is greater for women than for men. On the average, women in industry lose 10 or 11 days a year and men 7 or 8. The average length of illness, however, is greater for men than for women. Women exceed men in almost all illnesses (among exceptions are hernia and tuberculosis). But the mortality rate is higher among men. Dr. Baetjer discussed infant mortality and fertility briefly, and pointed out that although there is a lower fertility among working women than non-working women, this does not mean that the work has anything to do with it, since women who work do so for economic reasons, and are in an economically unfavored group.

In attempting to discover whether anything was known about the incidence of abortions due to traumatic injuries among industrial women workers Dr. Baetjer wrote to the various State workmen's compensation boards to find out if claims for compensation for abortions due to industrial injuries had occurred. Among the answers, most States reported no such cases and a few reported that they were extremely rare.

After the discussion there were some brief comments. Dr. Macdonald, of the Baltimore Department of Health, spoke of an analysis of cases of dermatitis which indicated a greater frequency among men than among women. Dr. Baetjer had mentioned that there was no indication that women were more susceptible to dermatitis than to men in spite of a commonly expressed notion to the contrary.

Dr. Gafafer and Dr. Brinton, of the Industrial Hygiene Division of Public Health, mentioned their forthcoming study of shipyard welders, which will give a good deal of material on the health experiences of men and women welders. I understood Dr. Brinton to say that there were some 32,000 cases in this study.

Dr. Gafafer mentioned that the subject of the effects of industry on the health of men and women was similar to the problem relating to Negroes and whites. He pointed out that as economic status, work conditions, and other factors became more and more alike for Negroes and whites, the differences in the effects of work seem to diminish. He thought the same thing was true of differences between men and women.

JM/ml

Miss Miller February 28, 1945

Jennie Mohr

Need for ASA standards for outdoor work jackets for women

I received a reply from Mrs. Herrick about the needs of women workers in shipyards for standards for outdoor work jackets. She described the jackets used, the kinds of requirements set down for purposes of safety, and the general range of costs. She said, in part, "However, on the whole I should say that we have no legitimate complaints about jackets and do not feel any pressing need for the allocation of materials for the manufacture of women's work jackets."

Miss Miller February 27, 1945

Jennie Mohr

In the course of the periodic inspections made by the Departmental Safety Committee, I spent an hour and a half in an inspection of the Burchell Building premises of the Bureau of Labor Statistics, with Mr. Kennedy of the Division of Labor Standards and Mr. McElroy of the Bureau of Labor Statistics. A regular report of this inspection will be made by the Safety Committee.

On the way back to the office I had a conversation with Mr. Kennedy about the role of labor in safety programs, in relation to the special campaigns being carried on by Labor Standards, and also the practice of developing effective labor-management committees. Mr. Kennedy believes that organized labor can "assist" in safety programs, but all responsibility should rest with management of industry, and the workers should be "led" and "directed." I said that I thought safety should have the same status in relation to responsibility of workers and employers as all other matters in which they have joint interest. I mentioned some of the things organized labor has developed in the way of health programs, such as the ILG Health Center, the UAW Medical Institute, and others; and said that the same thing should be true of safety.

Mr. Kennedy said that there are two "experiments" now launched by labor unions in the field of safety--UAW and the Rubber Workers each have one full-time safety man working from the national levle, to build safety programs in local unions.

JM/ml

Miss Miller February 27, 1945

Jennie Mohr

Captain Cloe Doyle, of the Army Air Force, called to talk over with me some matters relating to the safety program for Wacs and civilian women in Army Air Force installations. About a year ago she came in, just before she went to Patterson Field in charge of the civilian women there. Now she is in Washington, in charge of the safety program for all women in all the Air Force installations.

The Air Force Safety Division has a safety manual for all its workers. Capt. Doyle is planning to write a supplement directed to the women. We discussed some of the items that should go into such a supplement and the type of approach that should be used. She was also interested in including a discussion of office hazards, for the use of clerical personnel; and I am giving her the material on office hazards which our departmental safety committee has.

Capt. Doyle is coming to the meeting on February 27 of the American Hygiene Association at which Dr. Baetjer is talking, and I am arranging to introduce them, as Capt. Doyle is anxious to talk to Dr. Baetjer.

We also talked about the regulations issued by the Army dealing with the utilization of Wacs, the necessity of using good placement policies in assigning work, analysis of physical requirements of jobs, and the carrying over into these military assignments the standards developed by the Women's Bureau for the employment of industrial workers.

Since Capt. Doyle had to leave at Patterson Field all the material from the Bureau which I had sent her, I am having a number of bulletins and other material sent to her here in Washington.

We discussed the accident experience of women in Air Force installations and the general accident data I have available; the need for keeping records separately for men and women, and the importance of standardizing such records if possible in the various installations.

Capt. Doyle said as she left that the conference had clarified her ideas on many of the things we talked about, and that she hoped to be able to come again when the need arose.

COPY

Copy for Miss Mohr

February 25, 1945

Miss Frieda Miller
Chief, Women's Bureau
Department of Labor
Washington, D. C.

Re: British Caterers Visit to America

Dear Miss Miller:

Our London office has just cabled us that the visit of a delegation of industrial feeding experts to the United States is now revived, and that they will probably come to this country late in March.

I discussed this project with you last November, before the trip was cancelled. One of our London representatives tells me that it is partly due to the helpful interest shown here that the project has been taken up again.

I am cabling London for more information about the time of their arrival, the probable length of their stay, etc., and will let you know when I have any further data. Thank you for your interest.

Sincerely yours,

(Mrs.) Margaret S. Carroll
British Division

Mrs. Isabel Schafer February 23, 1945

Jennie Mohr

Thank you for the message from Miss Miller about the clothing standards. I have Mrs. Herrick's memorandum on clothing requirements, which considers regular work clothes but not jackets. However, I am writing her to see if she has anything further on the needs for outdoor jackets.

From Mrs. Herling at War Production Board I received a quite complete report on clothing requirements in a number of plants, including western Todd shipyards; they do not mention outdoor jackets, however.

I very much doubt whether the UAW would have much to offer, since their women do very little outdoor work. I talked this matter over with Miss Bagwell some time ago, having thought of writing Mrs. Jeffrey on this subject and deciding against it. But perhaps I should change my mind.

JM/ml

JM

Miss Miller February 23, 1945

Jennie Mohr

Interview with Dr. Mary Mayer, N.Y. State Department of Labor, Division of Industrial Hygiene

On February 19th in New York I had an appointment to see Dr. Greenburg. He was called to a meeting, however, and I did not see him. However, I did have an interview with Dr. Mayer, in which we discussed the question of the susceptibility of women to various occupational hazards. Inenquired whether Dr. Mayer or her colleagues had recently done or were contemplating research that would give me further information on this subject. Dr. Mayer said that the New York Industrial Hygiene Division was not going into studies pertaining particularly to women workers. She believes that there is no evidence from which we can draw a conclusion about differences in the effect of occupational exposures on men and women, and is unwilling to make any statement about such differences.

Differences is not the only point - What is happening to women (whether or not to men) MEP

I raised the question of pregnancy. Dr. Mayer agreed that special consideration should be given to the additional strains which women experienced at such times; and said that, in general, any improvements that you could get in protection of women against exposures were so much to the good.

We discussed the question of maternity policies as set up by management and by labor unions. She agreed with me that establishing such policies was extremely desirable, and that labor should be encouraged to do this.

Dr. Mayer stressed the value of good pre-employment and periodic physical examinations, and said that these should be used in the process of selecting and placing women workers. She thought that much could be done through this means to protect the women workers.

Dr. Mayer believed that a study of differences arising from sex would require an extremely large and voluminous body of data in order to give valid and dependable results. She thought it would be much more desirable to put the time, energy, and money involved into problems relating to all workers, men and women, rather than attempt to establish the need for special consideration for women.

We talked about legislation prohibiting or regulating the employment of women in specific jobs. She said that there were a number of such laws on the books, such as the one in New York prohibiting women's employment on dry grinding operations, that she thought were unnecessary and undesirable. She pointed out that in the past some of these laws might have been useful because of extremely poor working conditions but she did not see their present value.

Dr. Mayer asked me to remember her to you and give you her best wishes.

I left a message for Dr. Greenburg saying that we appreciated the material he sent us on the New York food-service code, and were looking forward to hearing from him about lunch room standards and his re-evaluation of the problem of occupational hazards in relation to women workers.

JM/ml

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Mohr DATE: Feb. 21, 1945

FROM : Isabel Schafer

SUBJECT:

Miss Miller has seen your memorandum of February 7 in regard to your work with the American Standards Association relating to standards for outdoor jackets for women workers. She thought you might write to Mrs. Elinore M. Herrick of the Todd Shipyards Corporation, who did a very careful survey before deciding on work clothes for her outfit, and she thinks the New England Council of the C.I.O. had a women's meeting where they had a very good display of work clothes. Then she wondered whether the Automobile Workers (Miss Hawes is not there any longer and she doesn't know how Mrs. Jeffrey would feel about that, and may not be as interested as Miss Hawes was, but Hawes was interested) wouldn't have something to contribute.

1 Bway NYC

The Secretary February 20, 1945

Frieda S. Miller

War Production Board allocation of textiles for women's work clothing

The War Production Board is preparing a program for the allocation of scarce materials for the manufacture of women's work clothing. I understand, however, that no provision is made by which the clothing is required to come up to specified standards of design and workmanship. Such standards have been established by the American Standards Association, at the request of government agencies, with the understanding that they would be used in this way.

It seems important to me that use be made of these Standards to guarantee satisfactory wear of the clothing. I hope you will therefore care to send the enclosed letter to Mr. Krug.

FSM:JM:ml

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Mohr DATE: February 5, 1945.

FROM : Frieda S. Miller

SUBJECT:

I have your memorandum of the 3rd and while I did not know you were doing work clothing I think it is a good idea to go and talk to people but would like to suggest that you give me a little statement of how much of a job this is going to be and whom else besides Miss Christman you are going to see and what kind of information you need. There are a number of people who have had extensive experience in the use of work clothing in large groups of women with whom we might get in touch.

Miss Miller   February 7, 1945

Jennie Mohr

The work on work clothing I mentioned in my memorandum of February 3rd is with the American Standards Association, and relates to standards for outdoor jackets

Besides talking to Miss Christman I had a telephone conversation with Miss Scattergood of the A.F.ofL., who is getting some information for me on the use of outdoor jackets by women workers. I have also written a letter to Miss Herstein and a letter to a Mrs. Katz in Baltimore, both of whom Miss Christman tells me may be able to get further practical information on this subject.

I believe there is to be one more meeting with WPB, members of the ASA, and representatives from the A.F.ofL. and the CIO, to decide finally whether WPB will subsidize the remaining work of the American Standards Associaton committee on jacket standards. So far as I know, that is all I shall be involved inl

If you could suggest other people who have had extensive experience in the use of work clothing in large groups of womenk I shall be very appreciative.

JM/ml

Miss Miller February 3, 1945

Jennie Mohr

1. I went to see Miss Elisabeth Christman of the Women's Trade Union League, to discuss whether she could give me information or refer me to people who would know about the experience of women workers in the use of standard work clothing. This in connection with my current work with the American Standards Association. Miss Christman did give me the name of a number of people with whom I shall get in touch.

I was particularly glad to have her comments about her experience some years ago with the question of suitable work clothing for men. She fortified our opinion that work clothing for men has been developed according to fairly satisfactory standards, whereas that for women has not and therefore there is a need for such standards for women's work clothes. The people she referred me to are union epople who have been in jobs in which the question of such clothing is serious, and I hope to get some firsthand information from them.

2. Dr. Anna Baetjer of Johns Hopkins University came to call. Her book on the health problems of women in industry is finished and is being published by the National Research Council. I believe it will be an extremely useful volume for the Women's Bureau.

We discussed at the same time some questions relating to my preliminary work on the health records study, which I shall report in another memorandum.

JM/ml

In regard to your reference to medical data and the physical differences of women and men, I know that a good deal of work has been done in this field, but I think much more study must be given to this question about which there is so much controversy.

However, there is no doubt that these differences are real, and that some of them must be taken into serious consideration in relation to their consequences in the employment of women. It would be the height of unrealism to fail to recognize the differences arising from the child-bearing function, and the need to protect this function in working women. Such matters as the exposure of women during periods of pregnancy to the effects of lead or benzol fumes, or to excessive lifting, stretching, and other physical strains, cannot be overlooked. Moreover, it should be remembered that disturbances to the skeletal structure or blood, storing up lead in the body, and other consequences of unsuitable employment may have harmful effects on the child-bearing function at a later date.

In addition to this basic difference between women and men, there is evidence relating to other distinctions which should not be neglected. Among these, for instance, are the ~~high~~ relatively higher incidence of tuberculosis among young women; the possibility of development of cancer as a result of holding large and powerful pneumatic tools against the breast for support; and the lesser physical strength of the average women to do heavy work.

For inclusion
in a letter from the
Secretary to a
Woman's Party

Feb 45

jm

Miss Miller **January 25, 1945**

Jennie Mohr

Proposed industrial code for lunch-rooms - New York

Dr. Greenburg's material on the proposed industrial code for lunch-rooms in New York covers cafeterias, restaurants, lunch wagons and other facilities for serving meals but does not discuss lunch-rooms in which workers can ~~h~~eat their lunches brought from home. It does not give details of physical requirements, but stresses the importance of having good nutrition.

I mentioned this code to Miss Angus and we thought it would be better to wait until I get the draft of lunch-room standards from War Food Administration before writing up this section for the Bulletin. It would be better to be able to discuss both kinds of lunch rooms, especially since there are so many small plants, in addition to large ones, that have no facilities for furnishing food. I expect to get the draft from War Food Administration within two weeks.

JM?ml

JM

Miss Miller January 24, 1945

Jennie Mohr

A conference at War Food Administration on lunch-room standards

Having received a request through the mail for standards covering lunch-rooms which are to be used only by workers bringing their own lunch, in which no food is to be served, I called the War Food Administration office to inquire whether they had set up such standards. Mr. Adelberger said that they had not, but asked me if I would be willing to come over and talk with them about what would be most desired in such standards. He would like to develop such standards in cooperation with the Women's Bureau.

I talked to Mr. Adelberger, Mr. Blackwell, and Mr. Lowenthal, who have charge of the War Food Administration industrial feeding program for war plants. They agreed that it would be desirable to have such standards. We listed a number of items, including the following:

Size of lunch-room in proportion to number employed
Ventilated receptacle for keeping lunches brought from home.
Facilities such as sink, hot plate, etc., to enable workers to provide coffee, soup, and so forth.
Relation of lunch-room, wash-room, rest-room, and work places.
Possible use of canteens in the lunch-room to supplement box lunches.
Extent to which such lunch-rooms should be encouraged as a preliminary to a fuller feeding program in the plant.

Mr. Adelberger said he would make a rough draft of standards they think should be recommended, and send it to me for criticism and suggestions. He thought it could be published as a small leaflet that could be distributed perhaps with other material. We did not discuss any question relating to cafeterais or other eating facilities involving the supplying of meals in the plant.

JM/ml

Miss Mohr

Miss Miller January 23, 1945

Jennie Mohr

American Standards Association Standards for Women's Work Jackets

At the request of Mr. Willis MacLeod of the Office of Civilian Requirements of War Production Board, I attended a meeting to discuss whether or not WPB should take over and complete the work on these Standards. Present were Mr. Merritt Penticoff, Assistant Vice-Chairman and Director of Office of Civilian Requirements, Mr. MacLeod and Mr. Hanson of OCR; Miss Fulcher, ASA, Dr. P.G. Agnew, Secretary of ASA; and Mr. Hennessey, Office of Price Administration.

The Standards had been begun by the American Standards Association at the request and with the support of OPA. Recent regulations restrict OPA from setting up standards on which a price ceiling is to be placed and they therefore cannot continue to subsidize the project.

Mr. MacLeod was very anxious to complete the standards, which have had most of the work already done on them. However, the matter was taken to Mr. Merritt Penticoff, who is Mr. MacLeod's superior, for final discussion.

Mr. Penticoff did not think that the standards should be finished, for the following reasons:

1. He did not think the sample jacket was a satisfactory work jacket.
2. He thought it would be too expensive.
3. No priority should be given to women's jackets because of the scarcity of material and the fact that men workers requiring such jackets are so much more numerous.
4. Standards had never been set up for men's jackets and therefore needn't be for women's.
5. Manufacturers would be unwilling to make, and retailers unwilling to stock the jackets because women would not buy them and they would represent a financial loss.

We discussed these reasons, some of which are valid and some not. The committee was perfectly competent and [redacted] it is a good, safe, wearable, functional jacket. Even though women may not continue for a long time to do many of the jobs now requiring such jackets, priorities issued in proportion to the actual need would make it possible for those who do need them to get good jackets.

Dr. Agnew, Mr. MacLeod, Miss Fulcher, and I differed with Mr. Penticoff's opinion that jacket standards were not necessary, and that these standards are not satisfactory. He may be right about the difficulty of getting them used, however; and of course there would be no point to having them unless we could be sure they would be used.

I believe it would be regrettable if the standards were not completed and used by WPB. Standards for other work clothing have proved very helpful even when used voluntarily and not solely as a basis for getting priorities. Mr. Penticoff's point that the price is too high may be valid; we decided that the ASA would see whether it could be reduced without sacrificing any of the safety or other basic features of the jacket.

I doubt very much whether WPB will finish the job, however. Mr. Penticoff seemed pretty adamant on the subject, and his mind was made up from the beginning.

At the request of Miss Fulcher of the ASA I am sending the enclosed letter to Mr. Lawrence, Secretary of the ASA committee, to give him my views on this meeting.

JM/ml

January 23, 1945

Mr. H. M. Lawrence, Secretary
ASA War Committee - L17
American Standards Association
Grand Central Terminal Office Bldg.
70 East 45th Street
New York 17, New York

Dear Mr. Lawrence:

Miss Fulcher has undoubtedly given you the details of our meeting with Mr. Penticoff and Mr. MacLeod of the Office of Civilian Requirements of the War Production Board. I am sorry that Mr. Penticoff's opinion about the suitability of the standards and the desirability of completing the work differed from that of the rest of us. I think he is not justified in saying that the jacket is not a good work jacket; he appeared to arrive at this opinion after a very cursory examination of the samples.

However, his strong argument is the practical one of the difficulty of getting the standards put into use. I think you would agree, as I do, that having standards is not worth anything unless they are used. There should be some assurance that the assignment of priorities will be made and that the jackets will be manufactured. I wonder if anything can be done by the manufacturing or retailing members of the Committee to produce evidence showing how the earlier standards were used, and giving assurances of interest in using these. By such means we could show Mr. Penticoff that we are justified in finishing the job, on the basis of its practical usefulness.

Mr. Penticoff also raised the issue of price. I am not sure whether he is correct in saying that the price is too high; he may be. I gathered that Dr. Agnew and Miss Fulcher intend to take this up with you.

Mr. Penticoff apparently was not sympathetic to the idea of having standards for work clothing for women, and did not recognize any differences in the work-clothing problem for women and for men. It was pointed out to him that the availability of good work clothing for women was much less than that for men; and that in attempting to satisfy the need, it was important also to supply the right kinds of work clothing.

It would be indeed regrettable if this job, on which much time and effort have been spent, were not completed; and I believe that not only for the sake of past effort but more for the sake of the usefulness of the project, it should be finished. However, I must confess that I am very doubtful that WPB will take over where OPA left off.

If I can do anything at this end to help push the matter through, I should be very glad to do so.

With best wishes, I am

Sincerely yours,

Jennie Mohr,
Associate Industrial Economist

JM/ml

Miss Miller January 9, 1945

Jennie Mohr

The letter from Mrs. Morrow concerning General Electric Company's rest room and toilet facilities.

Mrs. Morrow's reference to the War Labor Board should be War Production Board.

I have consulted Mrs. John Herling, of the Labor Requirements Division of the War Production Board, who deals with these matters. She suggested that she get in touch with their regional labor representative in the regional office of Labor Production of WPB, Mr. Frank E. Grider, Union Commerce Building, Cleveland, Ohio. Mr. Grider has charge of the region including Erie, Pennsylvania. Mrs. Herling will write to him, asking him to get in touch with Miss Norton of the General Electric Company, and find out specifically what is wanted. She says there is no reason why the General Electric Company should not be permitted to build such facilities for their newly acquired war plant, though it may not always be possible to get the exact kinds of material they want. Mrs. Herling will let me know as soon as she hears from Mr. Grider.

JM/ml

Miss Mohr

Miss Miller June 24, 1947

Constance Williams

Your memo of 6/23/47 on "Letter to Miss Mohr from
Visiting Nurse Association (Hartford, Conn.)

The note we sent to Miss Douglas of the Visiting Nurse Association in Hartford was entirely in regard to the interview Miss Mohr had with her on the night work study. I am sure that this was clear to Miss Douglas, although I note that in the letter we did not name the study "Night Work Study."

As you will note from the reply from Miss Douglas, the comment on part time work by mothers was her own rather than a leading question asked by us.

In accordance with the discussions Miss Mohr and I had with you a few weeks ago, Miss Mohr is doing nothing more on the general questions relating to the employment of women and family responsibilities. We are, however, going ahead with interviews with social agencies in connection with the night work study to gather whatever information we can on the relation of such employment of women to family responsibilities.

Since we are no longer seeking at this time to develop a broader study of the relation of the employment of women to family responsibilities, Miss Mohr has been putting more time on the basic work required for the night work study. At the present time she is assisting in home interviews in Hartford in an effort to clean up this work before the end of the month.

I am returning with this memorandum Miss Hughes' book, "Mothers in Industry."

✓ CC: Miss Mohr

CW lc

JM

Miss Miller

Jennie Mohr

Third Industry Drive of the Division of Labor Standards, Planing Mills
- and Wooden Containers

Following the procedure of the second industry drive in plywood and planing mills, Mr. Kennedy sent me the preliminary draft of the material to be used in the third industry drive. Herewith is a copy of my memo to him with comments. You have already received my first memo to Mr. Kennedy in which I gave him the material available from the Women's Bureau on the employment of women in this industry.

JM/ml

Miss Mohr

Research Division Section Chiefs
CC to Miss Miller and Miss Larrabee

Jan. 8, 1947

Constance Williams

Current projects

Attached is a listing of current projects which was used as a basis for discussion with Miss Miller yesterday.

The chief changes made by Miss Miller are the following:

1. That we drop the idea of a leaflet on Union Services at this time.

2. That the general project suggested for Miss Pidgeon in the spring, "Women Workers in the United States", be changed to a study of part-time work by women, to be worked in cooperation with colleges, certain trade associations, etc.

3. That we add, as one of our spring projects, special work on home work as background for the proposed ILO study. (It is suggested that this assignment be given to Miss Roberts.)

4. That we plan during the spring to keep an active interest in developments in household employment. (Probably to be assigned to Miss Mohr.)

CW:km

1/7/47

RESEARCH DIVISION

MAJOR PROJECTS UNDERWAY JANUARY 1947

Field Work Section

Wage Determination - Erickson-Bagwell-Hammerle
Baltimore Postwar - Hawes-Macaulay-Jeffreys
Night Work-Hotel and Restaurant - Hawes
(Household Employment - Payne)

Statistical Section (Spring on leave)

Baltimore - Robison-Askew-(Rottenberg)
Injuries - Mohr-Rottenberg
BLS Wage Data - Hassell-(Winthrop when well)
Work on Laundry Report - Ostrander
Work for Hooks on Seven Decades - Rottenberg

Economic Studies Section

Wage Bulletin - Pidgeon-Banker
Seven Decades - Hooks-Harding
Notes for Staff, etc. - Benham
International Background - Roberts

Employment Opportunities Section

Employment Opportunities in Science - Zapoleon-Katcher-Brilla-Kelliher

PROJECTS FOR THE SPRING

Field Work Section

Night Work, Hotel and Restaurants - Hawes-Ostrander-Jeffreys-(Temple)
Wage Determination-Clerical - Hammerle-?Bagwell
Baltimore Writing - (Hawes)-Macaulay

Statistical Section

Baltimore - Robison-Askew
Night Work - Spring-Mohr-Rottenberg-(Winthrop)
BLS Wage Determination - Hassell-(Winthrop)
Union Service Leaflet - Mohr
Social work resources on working women - Mohr

Economic Studies Section

Federal Service - Pidgeon-Hooks-Banker
Wage Bulletin - Pidgeon-Harding
(Expenditures - Hooks)
Women Workers in U. S. - Pidgeon
Notes for Staff-Benham

Continued

Economic Studies Section - Continued

Equal Pay in Union Agreements - (Bagwell)-Roberts-Harding
International Background - Roberts
Standards for Union Control Provisions Leaflet - Bagwell

Employment Opportunities Section

Opportunities in Social Work - Zapoleon-Katcher-Brilla-Kelliher

SHORT JOBS - JANUARY 1947

British Equal Pay Report - Hooks
Annals Report - Hooks-Zapoleon
Comments-BLS Clerical Workers Wage Study - Erickson-Pidgeon-Williams
Peurto Rican Household Employment - Williams
Efficiency Rating elements discussions
>Plans for Union Program - Williams-Pidgeon-Bagwell
ILO Employment office report - Zapoleon-Williams
Notes for Miller-Hartford Speech - Pidgeon-Roberts
Hawaii - Erickson-(Spring)

UNFINISHED

International Work on Status of Women (Pidgeon?)

CW:km

M.H.H. 1/6/47

NIGHT WORK STUDY

Definition of night work

Night work in this study to be defined as work ending after 9 P.M. and beginning before 6 A.M.

Industries Covered

1. Restaurants - all types except drug store soda fountains

2. Hotels - all eating and drinking, and lodging facilities in commercial and residential hotels (omit apartment and resort)

Community Background

Information to be obtained -

1. Extent of night work in other industries in areas covered

2. Community demands for restaurant and hotel night work - to serve industrial workers, recreational, travelers (bus stations, railroad stations), etc.

3. Community attitude toward night work in general for women

4. Any community programs (e.g. local permits or ordinances) or employer practices (employers' agreements) to control night work after 9, 10, or 12 midnight, or before 6 AM

5. Any community programs or employer practices to reduce the difficulties connected with night work, such as special transportation arrangements, child care programs, special recreation programs

6. Social effects of night work on individual worker and workers' families, and on community. Juvenile delinquency - Divorces

7. Information from U.S.E.S. on opportunities for women's employment generally.

Agencies to be consulted include unions, restaurant associations, PTA's, social welfare agencies, juvenile court, probation officers, Travelers' Aid, schools, churches, etc.

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Miss Miller 12/3/46

Jennie Mohr

Committee on Safety and Health and Workman's Compensation, of the Secretary's Conference.

The Committee met on Monday morning, December 2, 1946, in Room 7135. The chairman of the meeting was Mr. C. George Krueger, Deputy Commissioner of the Department of Labor of New Jersey, and Director of the Engineering and Safety Division of the Department.

The agenda of the meeting was as follows:

I. Safety and health
  a. Division of Labor Standards activities
  b. Industrial hygiene
  c. Built-in machine guards
  d. Code-making authorities in State Labor Departments

II. Workmen's Compensation
  a. Increase in benefits
  b. Improvement of coverage
  c. Protection of handicapped workers
  d. Medical care

The following comments cover what appear to me to be the most significant points in the meeting:

1. I received the impression that the resolutions coming out of the meeting were practically settled before the meeting took place. After a brief discussion of each of the topics, the chairman would announce that we now were able to formulate a resolution, but very little was said about the position to be taken or the form or content of the resolution. Mr. Marks of Labor Standards was in charge of formulating the resolutions. It was decided that no meeting would be held to discuss them after they were drawn up, before being presented to the Conference. New subjects (apparently not on the pre-planned list of resolutions) were discouraged, even though they were relevant to the general subject.

2. The quarrel with the U. S. Public Health Service and State Health Departments over Industrial Hygiene programs broke out very vigorously. There was a good deal of denunciation of the Health Departments' efforts to take away functions of the Labor Departments. This followed very closely the discussion of a year ago. There was no inclination to talk about cooperating with the Health Departments, which already, in fact, have grants from the Federal Public Health Service and have in many places developed laboratories and technical staffs. The Committee was not

interested in the possibility of coordinating the inspection and enforcement functions of the Labor Departments, and their skills in handling labor laws, with the medical and other technical functions of the Health Departments. The latter were not recognized as valid or important; and emphasis was put on the idea that industrial hygiene is largely an engineering problem and therefore not the business of Health Departments.

3. There was a consensus that the States could make good use of the advisory and technical services of the Federal Labor Department without risk of exposing themselves to danger of encroachment on their rights. There was a good deal less argument over this point than there was in the meeting of a year ago.

4. Resolutions were to be formulated on the following subjects:

   A. Safety and Health

      (1) The desirability of using in the State Departments of Labor the services of the Division of Labor Standards. (Mr. Kossoris of BLS pointed out also the statistical services of BLS.)

      (2) The general advisory functions of Labor Standards, outside of the safety field.

      (3) Approaching the question of built-in machine guards through adoption of a uniform code by the States.

      (4) Development of Code-making authorities in State Departments of Labor where they do not already exist.

      (5) Stimulation of State Labor Departments to take responsibility for developing industrial hygiene programs.

   B. Workmen's Compensation.

      (1) Double indemnity for injury in cases of illegal employment of minors.

      (2) Increased indemnity in cases of any violation of safety law (not just for minors).

      (3) Desirability of Second Injury Funds.

      (4) Increase of benefits.

      (5) Removal of time limits on payments for total disability.

JM:kn

THIRTEENTH NATIONAL CONFERENCE ON LABOR LEGISLATION
December 2, 3, 4, 1946, Washington

AGENDA

Monday, December 2

9:00 a.m. Registration

10:00 a.m. Conference Convenes — L. B. Schwellenbach, Secretary of Labor, presiding

Welcome
Remarks of the Secretary
International Labor Affairs — David A. Morse, Assistant Secretary of Labor

Reports by States

12:30 p.m. Adjournment

2:00 p.m. Committees Meet

The Employment Service and Unemployment Compensation	Room B, Interdepartmental Auditorium
Regulation of Wages and Hours	Room C, " "
Migratory Labor	Room 6326
Labor Education	Room 3428
Safety and Health - Workmen's Compensation	Room 7135

4:30 p.m. Adjournment

Tuesday, December 3

9:30 a.m. Conference Convenes — Keen Johnson, Under-Secretary of Labor, presiding

Brief Reports by Bureau Chiefs on Federal-State Cooperation

Consideration and Adoption of Committee Reports

12:30 p.m. Adjournment

2:00 p.m. Conference Convenes — John W. Gibson, Assistant Secretary of Labor, presiding

Consideration and Adoption of Committee Reports

Tuesday, December 3, (cont.)

4:30 p.m. Adjournment

4:30 p.m. Heads of Bureaus, Divisions and Agencies at Home to the Delegates

		Room
Apprentice-Training Service	William F. Patterson, Director	5221
Bureau of Labor Statistics	Ewan Clague, Commissioner	2307
Conciliation Service	Edgar L. Warren, Director	3412
Retraining and Reemployment	Gen. G. B. Erskine, Administrator	A7-792 *
Wage-Hour and Public Contracts	L. Metcalfe Walling, Director	1114
Women's Bureau	Frieda S. Miller, Director	1303
U. S. Employment Service	Robert C. Goodwin, Director	4108
Division of Labor Standards	V. A. Zimmer, Director	6326

Wednesday, December 4

9:30 a.m. Conference Convenes — Philip Hanna, Assistant Secretary of Labor, presiding

Consideration and Adoption of Committee Reports

12:30 p.m. Adjournment

2:00 p.m. Conference Convenes — L. B. Schwellenbach, Secretary of Labor, presiding

Consideration and Adoption of Committee Reports

4:30 p.m. Adjournment

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* Apex Building, 7th and Pennsylvania

November 29, 1946

To: Miss Cannon
~~Miss Mohr~~
Mrs. Zapoleon

From: Frieda S. Miller

In preparing for the Secretary's Conference on legislation it appears that we will have to limit our observations on committees working on the various legislative subjects to one each. Some assignments will be made to the regional representatives on the basis of special staff interest. The following assignments are made to the Washington staff. Will each one of you who is covering a committee please prepare promptly a brief memorandum for my information indicating significant happenings.

Employment service - Mrs. Zapoleon
International relations - Miss Cannon
Safety, health, workmen's compensation - Miss Mohr

cc: Williams
Plunkett

Miss Williams

October 1946
22

Jennie Mohr

Mr A J Cleland of the Bricklayer's union called me for information on weight lifting. His union has been having an argument with the manufacturers about the size and weight of concrete blocks, and how large they should be before the union could require that two men lift them. He said that one manufacturer reported that a Labor Department standard for women was 40 pounds, and he thought that was excessive.

I told him about our standards, and also am sending him the revised lifting bulletin, for which he seemed appreciative.

MISS McGRAW:

10/22/46

Will you please send a copy of the revised bulletin on weight lifting to:

Mr A.J. Cleland,
Room 200, Bowen Bldg.,
815 - 15th st NW,
Washington, D.C.

(He's at the Bricklayer's union)

Thank you. J Mohr

10/22/46

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Miss Williams

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Miss Williams
17 October 1946

Jennie Mohr JM

Women attending Chicago conferences

I should like to record the names of the following women whom I met at the two conferences I attended in Chicago, and who I think would be interested in getting some of the materials from the Women's Bureau which relate to the general program of the Bureau, not only the safety and health work. Some of them Mrs Nason may already know:

At the National Association of Railroad Women:

Miss Elizabeth M. Haney, passenger representative of the B&O,
1320 Bankers Bldg., 105 West Adamsk St., Chicago, Ill.
Miss Haney used to work in Washington, and is known to a number of Women's Bureau people.

Mrs. G.V. Merrill, Supervisor of Dining Service, Union Pacific Railroad, Omaha, Nebraska. She was chairman of the conference.

Mrs. Isobel J. Masters, Secy-Treas. of the Association,
Room 413, New York Central Terminal, Detroit 16, Michigan

Miss Velma McPeck, Supervisor of Passenger Train Service, The Burlington Lines, 547 West Jackson, Chicago, Ill. She is Vice-chairman of the Association.

Margaret Irwin, Chairman of the Association. Atchison, Topeka, & Santa Fe Railway System.

At the National Safety Congress, at the meeting of the Women's Division:

Mrs. H.C.Houghton, 2d Vice-President, General Federation of Women's Clubs

Miss Sally Butler, President, National Federation of Business and Professional Women.

At the Safety Congress, I heard but did not meet Mrs Dorothy McCullough Lee, who is Commissioner of Publick Utilities in Portland, Oregon. She seemed a particularly interesting person and one who might well be interested in things the Bureau is doing. She was formerly a judge in traffic court, and is a lawyer, and has served on the Oregon State Legislature.

Miss Williams　　　　　　　　　　　　9 Sept 1946

Jennie Mohr

Starkey Farms

1. Miss Spring does not have any record of any visit to this place.

2. The reason the Teamsters Union is involved is that the people covered by the contract are:
    - Maintenance
    - Tractor Drivers
    - Field Truck Drivers
    - Packing House Loaders
    - Field Workers.

These people may be working for a cannery--the 2d, 3d, and 5th group sound as if they are rather farm workers. In any case, I wonder if conditions in a cannery would be what they were interested in. We need more information on who the workers are and where they work in order to know what kind of investigation is needed.

The contract (Sec. 13, last page) refers to "Adult workers not eligible for full membership in the Union...." This might mean either ~~[illegible]~~ women or possibly seasonal workers, such as migrants. They would be particularly interested in camp conditions if they were migrants.

No reference is made in the contract to working conditions.

Miss Williams 30 August 1946.

Jennie Mohr JM

National Safety Congress, Chicago.

Mrs Zapoleon's date in Chicago is October 3 or 4.
Th NSC meets October 7-11.

It would be advisable for someone to be at the NSC. I should be particularly interested in what the NSC is doing in developing its industrial hygiene activities, and also in going outside its usual membership. These items are tied up, I believe, with their attempt to get Congressional appropriations for their safety work. I understand that Labor Standards is on the program.

I should like to attend, if you think it appropriate, and if Miss Ziegler cannot cover the meeting s on top of her regular schedule. Miss Cannon will be away Sept. 17 to Oct. 10. She says that it will not matter if I am away the last week, as the Trainees will all have left by then. I do think it is important for the Women's Bureau to have first-hand information on the NSC program.

Miss Williams 27 August 1946

Jennie Mohr

Dr Nivens, of the American Red Cross.

I had a conference with Dr Nivens, and Mrs Nason. M Dr Nivens is developing a health and safety program for the B & PW, and was interested to talk over some of the kinds of health problems that should go into their program. From this preliminary conversation I understand that she has been primarily interested in a program dealing with (1) the individual health problems of the women members and (2) community health problems in which they could and should interest themselves. We discussed this kind of program in relation to the work of the Women's Bureau.

Dr Niven is going to send me a statement of the specific program planned for this year, together with published materials to be used, and also a statement of possible later developments. When we see these, we can have some idea of where the W B might help out, how the program may be related to the questions of health of workers, and perhaps offer some constructive suggestions.

B & PW program

"Independent Woman" Aug. 1946

ALTH AND SAFETY

Dr. Irma Gene Nevins, Chairman

1. That each BPW club have an active health and safety committee; that this committee be composed of persons actively interested in or engaged in the promotion of health and safety in the community.

2. That this committee work out programs in health and safety which will raise the standard of living for all members of the community.

3. That the local health and safety committee actively support already established health and safety programs, (a) by engaging in the activity itself, and (b) by giving it publicity and support.

4. That each health and safety chairman assume as her personal responsibility the carrying out of health and safety practices.

5. That the health and safety committee take leadership in the promotion of the program in traffic safety and assist the proper officials in carrying out the recommendations of The President's Highway Safety Conference.

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27 August 1946

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1. That the membership committee take an active part in program planning, assessing the value of the program for attracting new members and stabilizing the present membership.

2. That the three existing membership citations be continued and that a fourth citation be added; namely, that there be continued:

A citation to be presented at state conventions to each local club increasing its membership twenty per cent by April 1st of the following year. This is to be known as an *extension citation.*

And, a citation to be presented at state conventions to each local club sponsoring a new club. This is to be known as a *sponsoring citation.*

And, a citation to be presented at biennial conventions to state federations

us

Chairmen

Miss Williams 27 August 1946

Jennie Mohr

Letter of Mr Davis, re status of married women in employment

It may be desirable, in relation to the subject of the employment status of married women, to point out the existence and nature of contract clauses concerned with maternity leave--especially in relation to seniority rights and firing policies. The enclosed reprint from the article on this published in The Child might be sent--it summarizes the various positions taken in union agreements.

I should suggest a statement something as follows:

The protection of employment rights for married women who must leave work because of pregnancy has been an increasingly important item in union contracts. The continuing of employment as long as desirable before childbirth, and the return to the job with seniority preserved after a maternity leave, are included in a number of contracts. Samples of such clauses are given in the enclosed reprint.

Miss Mohr

Miss Miller August 27, 1946

Constance Williams

Editing Night Work Bibliography

I learned this morning from Miss Mohr that she had been told last evening at 4:45 by Miss Beyer that the Editorial Section is not going to be able to edit her bibliography in time for the work to be multilithed for the Labor Advisory meetings. She stated that she understood Miss Beyer had taken this up with you and that the decision has been made to mimeograph the material first.

I have talked with Miss Beyer this morning and learned that she feels that we should have done more in making the references consistent. In other words, she feels that we have put too large a burden on the Editorial Section for the reorganizing of the statement of the references. I am sorry Miss Beyer didn't come to me directly on this point. It was my impression that the form of presenting references was an Editorial job rather than a research job and I had not urged Miss Mohr to work on this aspect of the bibliography in particular. If the form of recording references is ~~not~~ to be an Editorial Section job, I think some instructions should be issued by Editorial for the other Divisions to follow in preparing biographical references.

On the second point, namely the decision of mimeograph instead of multilith, I also wish Miss Beyer had consulted me. I also understand that Miss Beyer has been told the bibliography is needed early in October, whereas the Labor Advisory Committee meeting is late in October. This matter of timing might have made some difference in the decision of multilithing. I feel very strongly that we should try to have the bibliography multilithed and ready for distribution at the Labor Advisory meetings.

I have asked Miss Beyer this morning to indicate whether she would like us to do further work in reorganizing the form of the biographical references. This we should be glad to do, as I said above, if this to be our work. Second, I have asked Miss Beyer to indicate how much other editing work needs to be done before the final typing of the bibliography and I am not clear what her estimate is on this.

According to Mrs. Nyswander, if the final typing of the bibliography could be available by Friday of this week, it would be possible to have this material multilithed for the meetings in late October. If this is not possible from Miss Beyer's point of view, I do hope that we can give to BLS some estimate as to when we could have final typing ready for them and explore further the possibilities of having it multilithed for our meeting late in October.

CW:pac

Miss Miller, Miss Williams 21 August 1946

Jennie Mohr

Meeting in Labor Standards, John Welch reporting.

As requested, I attended the meeting in LS to hear Mr Welch tell about his safety program in Uruguay. It was extremely interesting and enlightening.

Present were Mr David Morse, who called the meeting and presided, Mr Zimmer, Miss Gooden, Miss McConnell, two trainees in L.S. from South America, and a number of people from the State Dept.

The purpose of the meeting was to report on a project of L.S. relating tointer-American cooperation in the field of industrial safety, and see how desirable it appears to continue such projects.

Mr. Welch, at the request of Uruguayan authorities, spent several months there developing safety-training programs and courses for industry. He is a former member of L.S., now working in private industry and loaned back to L.S. for this purpose. The program was an adaptation of the courses and program developed during the war by the National Committee for the Conservation of Manpower.

Mr Welch worked principally in cooperation with the Uruguay Dept. of Labor, the government-controlled Insurance organization (which writes all kinds of insurance, including Workmen's Compensation), and industrial organizations. He visited factories and on the basis of what he saw there he developed training courses for both the Insurance inspectors (called "counselors"), and industrial managers, foremenk, etc. Very little was done directly with workers or with labor organizations.

Labor Standards and the State Dept. both seem interested in doing further work of this kind; and it did certainly appear to be a very productive project. Mr. Welch went into some details about both the relationships with various groups in industry and government and the technical problems relating to safety training in that country.

I should add that, in response to questions, he indicated the much greater importance of developing safety program from the top down --through management--rather than through workers' groups; although he felt that the latter would develop eventually. I understand this follows the basic policy of the safety programs developed by L.S.

Miss Williams 20 August 1946

Jennie Mohr

BLS survey of absenteeism

Some time ago Mr Kossoris of BLS Industrial Hazards Division discussed with me a proposed study on absenteeism, by sex, to be carried out cooperatively by BLS, Public Health Service, and the Social Security Board. He showed me the proposed schedule, which was to go to about 1,100 manufacturing plants selected on the basis of a preliminary survey of availability of absentee records. I made some suggestions, and said we would of course be interested in the progress of the survey. Mr. Kossoris said the results would be available to us.

Yesterday the Chief Clerk's office called to ask if I would like to see the final approved schedule. I have now seen it, and believe it will furnish much more authentic and broader information on absenteeism by sex than anything yet done.

The schedule will give, for quarterly periods over one year, the frequency and severity of absences, broken down into the following causes:

Industrial disease and industrial accident
Nonindustrial sickness and nonindustrial accident
Personal reasons
Reasons unknown

Severity rates will cover only the nonindustrial sickness and accidents.

I suggested to Mr Kossoris that it would be desirable to determine how much of the sickness absences are certified as such; otherwise, a good deal of absence may be recorded as due to sickness that actually is due to some other cause which the worker preferred not to give (as is often found to be the case). However, this factor was not included. Personally I think it is necessary in order to have a really valid determination of non-industrial sickness rates.

The initial schedule also requests data on the existence of sick-leave provisions or payments of cash benefits for nonindustrial disability.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

To Miss Robinson

~~TO~~ Miss Williams

DATE: 12 August 1946

FROM: Jennie Mohr JM

SUBJECT: Night work at Lockheed

The report from Miss Anderson shows nothing particularly relevant for our immediate use. The proportion of women on night work (16.4% is somewhat lower than the proportion of men (24.0%); in the manufacturing depts (as distinct from sales, administrative, etc.) it is 20.0% of the women and 24.3% of the men.

All but 0.1% of the women and 0.8% of the men who are on "night" work are on the second, not graveyard shift. The total number of women is 2673, of whom 2132 are on day work, and of men, 12,097 out of 15,928 are on day work.

So far this seems to bear out our idea that the "night work" question is much more one of evening than of midnight shift.

I am keeping the 4th copy of MKA's memorandum for my file, unless you would rather I returned it.

MVR

Could you ~~[illegible]~~ discuss hazardous occ with Jennie Mohr & me.

CW.

Miss Mohr

Excerpts from Miss Miller's Memo on the Monthly Report

...Your part of the report must be in Miss Larrabee's hands not later than the evening of the 2nd. I suggest, therefore, that you begin work on it not later than the 28th of each month (the 27th in a 30-day month), and that you report the work of the 28th, 29th, 30th, 31st, the following month.

Will you please arrange your report under the headings to the attached outline? The headings may, by the nature of the work done, vary slightly from month to month, but will in general remain the same. Suggestions for better ones are of course welcome. — Material that does not fall under these headings should be relegated to the end of your report, i.e., numbers of letters written, interviews with job-seekers, work on budget, annual leave taken.

5/29/46

I. CONFERENCE ACTIVITIES

- A. Special Conferences (run by or participated in by Bureau)
- B. Extra-Bureau Conferences (participated in, more than giving speech; e.g., discussion was led, Bureau material furnished, exhibit material prepared. Give place, purpose of conference, title of speech, describe materials furnished)
- C. Conferences with other Government Agencies
  - 1. Intradepartmental
  - 2. Extradepartmental

  (if a committee, give full name; purpose; extent of participation; whether for benefit of other agency, Bureau, or mutual, etc.)

II. LEGISLATION ACTIVITIES

- A. Minimum Wage
- B. Cost of Living
- C. Equal Pay
- D. Equal Rights
- E. Assistance to Individual State Administrations and D. C. (all DC work under one heading)
- F. Other legal work (analyses, etc.)

III. RESEARCH

- A. Major Research Projects
- B. New Research Projects Undertaken
- C. Exploratory Analysis, for Future Research
- D. Special-Purpose Research (In answer to questionnaires, in preparation for conferences, in answer to special request)

IV. REPORTS, LEAFLETS, ARTICLES, RELEASES, OTHER WRITING

- A. Reports (All Divisions report under this heading work on what will be published as a Bureau bulletin).
- B. Leaflets
- C. Articles
- D. Fact Sheet (All Divisions who participated, report here).

E. Releases

F. Speeches (writing speeches)

G. Other Writing (Prospectuses, maps, etc)

H. Distribution (W.B. publications - Miss McGraw - but report here also special jobs of getting WB materials out)

V. CONSULTATIVE AND TECHNICAL SERVICES (Other than dealt with under other major headings; aid only — not advice or assistance sought)

A. Aid to Other-Government Agencies

B. " " U. S. Government Agencies

C. " " State Government Agencies

D. " " Unions

E. " " the Press and Writers

F. " " Women's Organizations

G. " " Church Organizations

H. " " Schools, Colleges

VI. REGIONAL ACTIVITIES

A. Region I

B. Region II

C. Region III

D. Region VIII

E. Region IX-X

F. Region XI-XII

Organize report for each Region under indicated headings in this outline

VII. INTER-AMERICAN ACTIVITIES

A. Major or most interesting division activity reported in some detail

B. Trainee program

(Other, under headings suggested in this outline)

VIII. PUBLIC ADDRESSES

(Organization, place, title of speech; brief statement on contents of speech if at a conference, purpose of conference.)

Miss Mohr

Research Division May 27, 1946

Constance Williams CW

The Bureau of the Budget has asked the Bureau to prepare a listing of persons for the Tenth Edition of the Federal Statistical Directory. I have indicated on the attached sheet the persons in our Division whom I think should be included in the listing for this Division. I have also indicated titles that I think might be given. Would you check the titles and tell me of any changes you would prefer to have made.

For each of the persons listed in the Directory we have also been asked to prepare a biographical statement - a card is attached. Under the field of specialization I think some of us will want to check 43 and indicate we include a wide variety of subjects, such as 8, 19, 26, 27, 28, 29, 30 or 31. Others in the Division will, however, be able to check one or two fields in which they specialize. I should like to have you individually choose the field of specialization you would like to indicate.

Please return the attached card, filled out for us, and any comments you want to make about the listing to me by the close of business Tuesday, May 28.

CW:pmo

TENTATIVE LISTING OF RESEARCH DIV. PERSONNEL TO BE INCLUDED IN THE FEDERAL STATISTICAL DIRECTORY

Constance Williams, Chief

Office of Chief

Marguerite W. Zapoleon, Labor Economist

May Bagwell, Labor Economist

Planning and Evaluation Section

Mary Elizabeth Pidgeon, Chief

Janet M. Hooks, Labor Economist

Statistical Section

Isadore Spring, Chief

Jennie Mohr, Labor Economist

Field Work Section

Ethel Erickson, Chief

Eloise M. Ewing, Labor Economist

5/27/46

Miss Williams , Miss Larrabee 19 April 1946

Jennie Mohr

Refresher course at BLS for statistical clerks.

Mr. McElroy, who is in charge of the BLS work on industrial injury statistics, is giving a refresher course for his statistical clerks. Miss Banker and Mrs. Rottenberg, of our Bureau, who have been working in BLS on our cooperative injury study, have been attending the course at Mr McElroy's invitation. The course is two hours a week, and will run about two months.

Until now the course was given after hours; but Mr McElroy tells me that the Civil Service Commission requests that it be given during working hours. He says that if our two people wish to continue the course, and the Women's Bureau wishes to give them the time, he would be glad to have them come. The course will now be given on Tuesday and Wednesday, from 3.45 to 4.45.

If it is at all possible, I should like to ask that the Bureau allow Miss Banker and Mrs Rottenberg to continue, even though it takes four hours a week from Bureau work. I know Mr McElroy's work is extremely good, and it would be to the advantage of the Women's Bureau to have people with this additional training. I have had occasion to talk very briefly with both girls about the course, and they were both very enthusiastic about it.

Miss Williams 17 April 1946

Jennie Mohr JM

Mrs Nyswander has taken up again with me the question of revising Bull. 173 (attached). She says that there are numerous demands for a little pamphlet, that can be sent to foreign countries and also to answer inquiries here, that will have under one cover the essential standards for employment of women in industry. With the exception of Spec. Bull. 14, which only partly answers this need, we have nothing of this kind. Bull. 173 is out of stock, and also should have some revis~~xx~~ion.

I do not think it would be a long or hard job to revise this; much of it can stand as it is.

I told Mrs Nyswander I would refer this again to you.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : ~~Miss Constance~~ Williams
~~Attention~~ of Miss Jennie Mohr

DATE: April 2, 1946

FROM : Frieda S. Miller

SUBJECT: American Standards Association

I got the note and have mailed the ballot with which I am in hearty accord.

Miss Williams 2 April 1946

Jennie Mohr

The ad in the Winchester Star appears (from use of the phrase "new Wagner-Murray-Dingell Bill") to refer to S 1606, the National Health act, rather than the original W-M-D Social Security bill.

This bill provides community health services including public health, maternal and child care, and medical care for needy persons; it provides also personal health service benefits.

The public health and personal medical services come under the Surgeon General; the maternal and child care program under the Children's Bureau.

The bill is, of course, similar to the parts of the W-M-D bill that refer to these subjects.

I should say that the attack in the paper is typical of the A.M.A., though the technique of getting people to sign petitions against it in drug stores and doctors' offices is new to me.

We should, I believe, be strongly in support of this bill, on the same principles on which we are for the Social Security bill. The statements in the ad about Bureaucracy, politics, inefficiency, regimentation, etc. etc. are typical of propaganda put out by the AMA, who have vested interests (or think they have) in opposing any such social medical legislation (I dont mean by that I am calling it "socialized medicine".)

There are three National Committees of Physicians battling on the bill. One committee is in fact, though not overtly, sponsored by the AMA--it sets itself up as an independent committee, but isnt. It is the National Committee for the Extension of Medical Service. The other two, which favor the W-M-D bill, are the Physicians Forum (Ernst Boas) and the Committee of Physicians for the Improvement of Medical Care.

There seems to be enough evidence that "voluntary, Personal" plans such as the Medical Societies sponsor, are not "efficient, less expensive"--and they dont begin to cover the needed ground.

Miss Williams:

For the record: the National Safety Council is announcing a new public campaign to start in May, to raise funds from public contributions, for their "Public Service Program.". I think this is probably a very significant development. The NSC has been urging the passage of a bill which would designate that organization as the Government's safety organization--a status comparable, I am told, to that of the American Red Cross. In view of the fact that the NSC is built and subsidized by large industries, and is primarily concerned with the safety problems of member companies, it seems questionable whether they should be encouraged to blossom out into general public safety programs.

They have been expanding into a number of fields not closely related to their basic purposes--such as industrial nursing.

The development of this public-service appeal may have repercussions on the bill the Labor Dept. is interested in to establish a cooperative safety program between the Labor Dept. and State Labor Depts., comparable to the Public Health program with State Health Depts. Of course the NSC is strongly opposed to this.

JMohr

27 Mar 46

Miss Moler

Dr. Hamrick March 13, 1946

Constance Williams and Rachel C. Nason

Conference

In order to give you some background for the panel discussion planned on employment standards, ~~we have noted below~~ here are some notes on the discussion, as it was planned by various members of the Women's Bureau.

Timing of Discussions - The talks by Miss Hickey and Mr. Zaritsky, beginning at 2, may last almost until 3. Miss Miller has asked for some time at the end of the afternoon to summarize the afternoon's discussion (providing her voice is able to do this). This means that the panel discussion will have between an hour and an hour and a half.

We suggest that individual introductions be eliminated and that the speakers be asked to state their names when they first talk. We suggest that no person speak more than 5 minutes at a time, and that every effort be made to get the panel on to a question and answer basis as soon as possible.

As you know, weveral women workers are participating in the program and until we meet these people we cannot say to what extent they will take the initiative in asking questions, but we feel that care should be taken that they participate early in the program, weither by being urged to state a problem of their own or to ask a question.

Individual Worker Participants - The persons listed to take the lead in raising questions faced by women workers include the following:

Mrs. Edith Brown Reed, a Negro office worker from Richmond, Virginia
(we may have a story of race discrimination);
Miss Runyon, an organizer for the Meat Packers Union, AFL in Baltimore.
(She has been handling layoffs and reemployment problems for the union.)
Miss Brenglan and Miss enny, both of the Amalgamated Clothing Workers,
CIO, in Baltimore.
Miss Elizabeth Christman, Women's Trade Union League, will be on her toes
in asking questions and giving you a lot of help in keeping the discussion
lively.
Col. Brown, wishes to make a prepared statement for the press; this is not
long and perhaps she can read itein response to a question "what is ahead
for the woman veterans?"

Questions that we should like to have raised in the discussion -

For Mr. Goodwin - What is the USES doing for women workers?

For Mr. Clague - Do women have the same protection under unemployment compensation as men?

For Col. Brown - Even though she is listed as a worker - What is the Government doing for the woman veteran?

For Miss Stratton - How is the R&RA helping women workers?

There are many questions we should like to have raised in regard to Women's Bureau work, among these and the persons we feel best qualified to answer each, are the following:

What is the Women's Bureau doing to help communities establish programs to meet local employment needs of women, -- Miss Erickson. (Bridgeport Study)

What is the Women's Bureau doing to establish adequate wage and working conditions, -- Miss Anderson (Laundry Study)

What does the Women's Bureau do that helps women in labor unions, -- Miss Bagwell (Union series), Miss Erickson (Wage Determination Techniques)

What is the Women's Bureau doing to help women decide their chances of getting jobs in particular occupations, -- Mrs. Zapoleon (Employment Outlook Series)

What does the Women's Bureau do to improve safety and health standards for working women, -- Miss Mohr (Maternity Benefit Study and Injuries Study)

What is the Women's Bureau doing to help answer general comments that women should go back to the home now the war is over, -- Miss Spring (Economic Responsibilities)and Miss Hooks (Casualties)

What does the Women's Bureau do for the white-collar workers,-- Miss Pidgeon (Office Workers)

If time permits we should like also to raise the question of what the Women's Bureau would like to do in the near future, and to ask for comments from the floor regarding the importance of these various alternatives.

Possible future work includes further studies of wage and working conditions (in such industries as retail trade, hotels, or beauty parlors); migrant women workers; wage determination techniques; employment standards for household employees (see Friday afternoon discussion); employment opportunities in selected occupations; working conditions of office workers, with special attention to health; wages, working conditions, and living conditions among women cannery workers, etc.

Who's Who Among Women -

CW:pas

Miss Williams 16 April 1946.

Jennie Mohr

National Safety Council pamphlet on Home Safety.

This preliminary form seems well thought out and for the most part quite practical. Its approach is good. I would suggest the following comments to the NSC:

Page 1: Under "Your Town", first paragraph. I think it is much better to word the suggestions positively. The present ~~fi~~ sentence seems slightly querulous. I would suggest re-wording it:

"Your job is to create interest, develop knowledge, and build organized responsibility for home safety in your community."

Page 4: The subcommittee on publicity needs more definite and specific sources for information and materials. Where to get material for radio programs, and what kinds of things should go in should be explained. The last paragraph should mention where such a supply of leaflets, etc., can be obtained.

Page 5: Last paragrph should give more specific information on where and how instructors for such courses can be trained.

Page 6: Second paragraph, should be more specific about what to put into a questionnaire that supplements information mentioned in first paragraph; how to make up such a questionnaire. Or, information on sources for this procedure--where they can get help in making the questionnaire. Probably the Committee will not be composed of people skilled in the art.

Page 8: Also needs more specific sources of help. What local agencies exist that could be called on; where to get home economists.

I assume that the suggested list of publications at the bottom of each section will give published sources; but often such committees would need counseling and advice, and individuals or agencies to whom to write should be mentioned.

I do not have publications to suggest other than those I am sure the Safety Council already has.

Miss Williams 31 January 1946

Jennie Mohr.

This is in response ~~for~~ to your invitation to comment on the outline for self-study ~~of~~ local groups interested in the employment of women.

1. I understand that the groups for whom this would be used (by Regional Representatives of the Bureau?) as a guide would be mostly people untrained in such work. The parts outlining sources of information and agencies available seem to me clear, but when you get to No. II, 2 (page 3), isn't this getting into plant visiting and scheduling?. Would it be intended to have such a group actually develop a schedule and visit plants? They would need training for both these activities, provided the outline is meant to encourage them to take these steps. I should like to raise the question of whether the Bureau does or wants to act as guide for this purpose.

2. Should the outline becontinued under No. IV, to help answer the questions raised here. After the group gets the basic information described in I, II, and III, will they know what to do with it? They seem to be left a little up in the air, with no further indication of how to proceed; should they act principally as pressure on the agencies trained to handle unemployment or employment problems?

I should think the Bureau's greatest use to the local groups would be to inform them about sources of information and functions of existing agencies dealing with employment of women, but the relation of the groups to whom this outline would be helpful to the "experts" groups should be made more explicit, if possible, in the outline itself.

Miss Williams January 25, 1946

Jennie Mohr

Conference with Dr. Hannah Peters and conference with Mrs. Adelaide Bullen

Dr. Hannah Peters, in the Division of Obstetrics of the Permanente Foundation Hospital, Richmond, California, came in to see me on January 23. Dr. Peters worked with the women in the Kaiser Shipyard in the Richmond area, and is continuing her work at Permanente Hospital. This foundation which is now established on a self-supporting basis, has developed from an industrial health center to a community health center. The original group of shipyard workers covered by their medical service plan has dropped from some 26,000 to 7,000, and all but one or two women are now out of the yards, This plan includes in addition to the regular shipyard medical plan, a group plan which services many union and community groups in the region, and also an individual pre-payment plan. Permanente has taken over, for example, the medical service for the housing units in Vallejo, in which live the workers of the Mare Island Navy Yard.

Dr. Peters is very interested in getting valid data to discover the exact effects, if any, of specific occupations on the health of women. She has so far been unable to discover specific relations between occupations and disturbances such as menstrual irregularities, pelvic inflammation, despite the fact that many rumors are prevalent.

Dr. Peters was also interested to discuss the value of various types of health programs, the responsibility of employers for health and other social protection, (such as providing nursery schools or food) and in the role that unions might take in developing good health programs. She also asked about what unions are doing in matters pertaining to the job rights of women after the war. She has run into many difficulties on the West Coast because of the attitude and the reluctance of the unions to give full union advantages to women workers. I suggested that Miss Bagwell would be able to discuss that better with her than I could. She is coming back to Washington in about a week and suggested that she would like to drop in again at that time.

Dr. Peters is particularly interested in venereal disease clinics for industrial workers. I told her of the work of the Public Health Service and shall make an appointment for her to talk with someone in the Venereal Disease Division of the Public Health Service when she comes back to Washington.

When Dr. Peters and I returned from lunch we found Mrs. Bullen of the Harvard Fatigue Laboratory and we talked together for a few minutes before Dr. Peters had to leave. Mrs. Bullen is undertaking astudy of fatigue among women in industry. She is attempting, at the moment, only to isolate and evaluate certain specific factors which may contribute to the sum total of what constitutes fatigue. She has already made a study of a small number of women in four groups: Two groups with whom she undertook laboratory tests were Radcliffe students and Harvard Business School students. Two other groups with whom she worked were some 50 stitchers in a garment factory working in Chicago and a small group of office workers. She used with these two groups techniques of personnel interview, questionnaire, and evaluation of factory conditions in order to obtain data on the responses of women of different types to different work conditions. Her study is in particular, an attempt to analyze what she calls "kinds of women" (physique and temperament) and their response to specific jobs and work situations.

I had the impression that Mrs. Bullen's work is still highly academic and has not yet been thought out in terms of applicability to industrial situations. However, I think this will be done as she is working with people who have the experience of such studies as the Western Electric experiment of the Harvard Fatigue Laboratory behind them. At her request I am sending her some of our publications.

JM:sl

18 January 1946

Memo to:
Miss Williams
Miss Spring

From Jennie Mohr

The Illuminating Engineering Society, in cooperation with the American Standards Associationk, has put out various standards, or codes, relating to lighting. In 1938 Miss Nienburg was the Women's Bureau representative (member) on the ASA, and participated in the work resulting in the School Lighting standards put out then by the IES and the ASA. (Copy herewith; may I please have it back?)

In 1940 Miss Nienburg transferred her membership to Mrs Mettert. Mrs M was also on the ASA Clothing committee, and I inherited that job from her, and worked with the Committee on women's work clothing.

We are now apparently invited to have a member on the Committee to revise the School Lighting code, if we have "a substantial interest" in the project. I believe it is desirable to be on any committees on which we can contribute actively; but the Lighting committee needs primarily people knowing the technicalities of lighting engineering. I should hesitate to add my name to this particular committee, because the work is outside my knowledge.

Nyswander
Health & Safety

PUBLIC HEALTH BULLETIN
No. 298

WOMEN'S BUREAU
APR 26 1948
DEPARTMENT

HEALTH OF ARC WELDERS IN STEEL SHIP CONSTRUCTION

w p. 63 etc

FEDERAL SECURITY AGENCY
U. S. PUBLIC HEALTH SERVICE
WASHINGTON, D. C.

Health of Arc Welders in Steel Ship Construction

Other Principal Medical and Scientific Investigators

MEDICAL STUDIES

Assistant Chief Health Consultants, United States Maritime Commission

HARRY G. BECK, Captain (MC) USN
WALTER E. FLEISCHER, Commander (MC) USNR
CHARLES M. McGILL, Surgeon, USPHS

ENVIRONMENTAL STUDIES

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MORWICK ROSS, Lieutenant S (E) USNR
ERNANI D. STORLAZZI, Lt. Comdr. H (S) USNR

FEDERAL SECURITY AGENCY
U. S. PUBLIC HEALTH SERVICE

Public Health Bulletin No. 298

HEALTH OF ARC WELDERS IN STEEL SHIP CONSTRUCTION

A Survey Made in Cooperation with United States Maritime Commission and United States Navy

by

WALDEMAR C. DREESSEN, Senior Surgeon
HUGH P. BRINTON, Statistician
ROBERT G. KEENAN, Senior Assistant Scientist (R)
THALBERT R. THOMAS, Sanitary Engineer (R)
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United States Public Health Service

and

JAMES E. FULLER, Lt. Comdr. H (S) USNR
Regional Health Consultant, United States Maritime Commission

From Industrial Hygiene Division
Bureau of State Services

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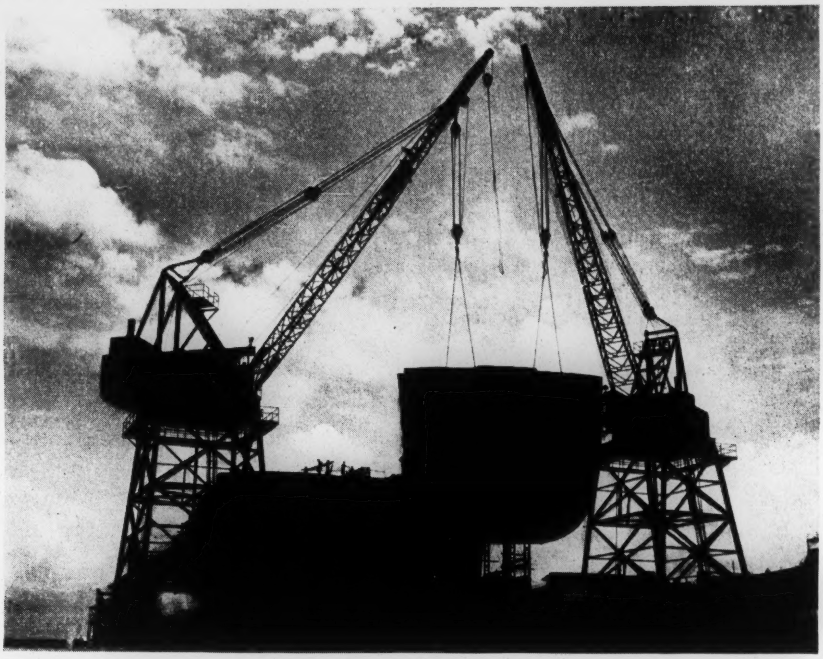

FIGURE 1.—A forward cofferdam being lifted into place by two whirley cranes (U. S. Maritime Commission photo).

ABSTRACT

This report presents the clinical and environmental findings of a cooperative investigation into the respiratory health hazards of shipyard arc welders who were working with coated electrodes on bare steel or galvanized steel. The investigation was instituted by the Division of Shipyard Labor Relations, United States Maritime Commission, and was conducted cooperatively from April through December, 1944 by the United States Public Health Service, United States Maritime Commission, and United States Navy Department.

Physical examinations were made on 4,650 individuals including 2,950 males and 1,700 females employed in seven United States Maritime Commission or Navy-contract shipyards located on the Atlantic, Pacific and Gulf Coasts. About one out of every four persons examined was a nonwelder and the medical findings of this group served to control the clinical observations on welders.

Quantitative measurements were made of the fume and gases contaminating the air of the work places. These data include 1,767 samples for iron and total fume, 278 samples for zinc, 25 samples for lead, and 2,019 samples for the oxides of nitrogen. Ventilation of some type was available in all the shipyards; although it was of various adequacy, extreme degrees of atmospheric contamination were infrequently observed.

Clinical observations were made on the general fitness of the shipyard workers examined. Some of the conditions noted, which were possibly related to welding exposure, include a respiratory symptom-complex (pharyngitis, rhinitis and conjunctivitis), arc-welder's siderosis, cardiovascular hypotonia and rather characteristic occupational stigmata of certain arc welders caused by burns of hot slag or molten metal. These conditions were either infrequent or of a low order of severity. Detailed blood studies failed to reveal any marked blood dyscrasias among welders. Gastrointestinal symptoms likewise were infrequent. There was no indication that welding fume, under the conditions observed, predisposed to pulmonary tuberculosis.

In general the concentrations of welding fume and gas observed in the environmental phase of the study were relatively low, and the clinical findings were minimal. Great variation in the nature of the welder's work precludes reasonable estimates of weighted fume exposures. Safety and ventilating practices in the shipyards investigated seem to have aided materially in keeping diseases of industrial origin at low levels of significance.

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INTRODUCTION

ORIGIN AND NATURE OF THE STUDY

During the spring and summer of 1943 a number of workers engaged in new ship construction complained of respiratory symptoms. Most of these complaints seemed to arise from arc welders who performed their work in inner bottoms or in other confined spaces of vessels under construction. The symptom complex was commonly referred to by shipyard workers as "shipyard cough," "welder's wheeze" or "welder's bronchitis" (*1*, *2*).

As reported to the United States Public Health Service by the division of shipyard labor relations of the United States Maritime Commission the welder would develop acute respiratory symptoms after about 3 months of inner-bottom welding, especially when the work was performed with inadequate ventilation. In general, the complaints were described as being more closely related to the upper respiratory than to the lower respiratory tract. An aggravating cough, especially prone to paroxysms in the morning on arising from bed and sometimes terminating with vomiting, was possibly the most prominent symptom. Many of the paroxysms were also alleged to come on at night, awakening the patient from his sleep. The cough usually produced fume-discolored sputum and occasionally streaks of blood were apparent in the sputum. Naturally, the symptom complex provoked considerable apprehension on the part of workers engaged in welding, as well as their families.

Possibly this condition was of more concern on the west coast (*3*) as it was one of the major subjects of discussion at a meeting there dealing with health problems in contract shipyards on August 7, 1943. Later that month the industrial hygiene division was asked by Daniel S. Ring, director of shipyard labor relations, United States Maritime Commission, to cooperate with that agency in a study of this respiratory syndrome as it was strongly suspected of being of occupational origin. Professor Philip Drinker, chief health consultant of the United States Maritime Commission, desired that the investigation follow the general lines of procedure used by the Public Health Service in previous extensive surveys of occupational disease problems in industry. During the next few months the plans of the study were culminated and material was brought together.

Field work began at the shipyard of the J. A. Jones Construction Co., Brunswick, Ga., on April 11, 1944. Other shipyards in which medical examinations and environmental studies were made included: Alabama Dry Dock and Shipbuilding Co., Mobile, Ala.; California Shipbuilding Co., Wilmington, Calif.; Consolidated Steel Co., Ltd., Orange, Tex.; Moore Dry Dock Co., Oakland, Calif.; New England Shipbuilding Co., Portland, Maine; Oregon Shipbuilding Corp., Portland, Oreg.; and Todd Pacific Shipbuilding Corp., Seattle, Wash. In the Oregon Shipbuilding Corp. only the engineering survey was performed. Field observations were terminated December 22, 1944. Five of the shipyards were constructing merchant vessels and two were building naval vessels (destroyers, destroyer escorts, landing ships and the like).

The purpose of the investigation was to determine hazards to the health of workers arising out of modern shipbuilding practices by means of engineering, chemical and medical study. More specifically, the main objective of the study was to determine, insofar as possible, the clinical nature of the respiratory symptom complex occurring in arc welders; its prevalence, cause and prevention. It was hoped also that the study might reveal whether the respiratory symptoms were related to chronic pulmonary changes (siderosis). It also afforded an opportunity for comparing this respiratory syndrome among welders of mild steel with the metal fume fever or zinc chills experienced by welders of galvanized metal.

The examination of about 5,000 men and women engaged in this form of steel fabrication yielded many cases with chronic diseases or impairments. The more common of these conditions such as heart disease, pulmonary tuberculosis, dermatoses and orthopedic defects will be discussed separately because of their importance in differential diagnosis and because they help to reflect the state of health of shipyard workers during war time.

Engineering and chemical studies were made to assess the environment of shipyard welders with reference to fume and gas exposure. The degree of air contamination of the arc welder was determined at representative hull, subassembly and shop locations. Ship construction procedures were described and the functions of the various crafts were explained. Ventilation in new ship construction was considered with regard to the best practices in current use. Chemical investigation of the particulate constituents of welding fume was centered on iron, zinc, and total fume determinations, with brief consideration of the other substances in fume produced by the use of coated rods in welding on bare steel. A limited number of fume samples were also taken of welding on lead-painted steel. Gas sampling was limited to the determination of the concentration of oxides of nitrogen in the breathing atmosphere of welders.

The quantitative data on air contaminants are presented by work location and kind of contaminant (particulate or gaseous). Where possible results are presented so they may be compared with general, state or war standards of maximal allowable concentration.

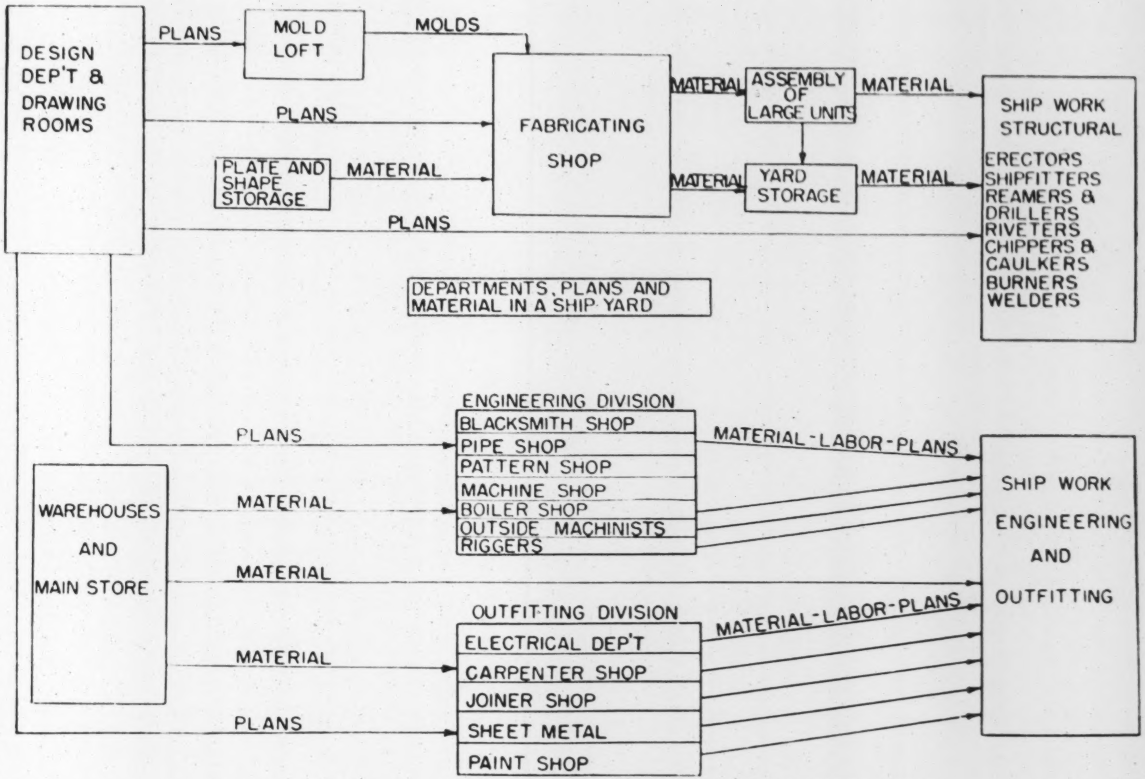
DESIGN DEP'T & DRAWING ROOMS
PLANS
MOLD LOFT
MOLDS
PLANS
PLATE AND SHAPE STORAGE
MATERIAL
FABRICATING SHOP
MATERIAL
ASSEMBLY OF LARGE UNITS
MATERIAL
MATERIAL
YARD STORAGE
MATERIAL
PLANS
SHIP WORK STRUCTURAL
ERECTORS
SHIPFITTERS
REAMERS &
DRILLERS
RIVETERS
CHIPPERS &
CAULKERS
BURNERS
WELDERS
DEPARTMENTS, PLANS AND MATERIAL IN A SHIP YARD
ENGINEERING DIVISION
BLACKSMITH SHOP
PIPE SHOP
PATTERN SHOP
MACHINE SHOP
BOILER SHOP
OUTSIDE MACHINISTS
RIGGERS
PLANS
MATERIAL
WAREHOUSES AND MAIN STORE
MATERIAL
MATERIAL-LABOR-PLANS
SHIP WORK ENGINEERING AND OUTFITTING
OUTFITTING DIVISION
ELECTRICAL DEP'T
CARPENTER SHOP
JOINER SHOP
SHEET METAL
PAINT SHOP
MATERIAL
PLANS
MATERIAL-LABOR-PLANS

FIGURE 2.—Diagram showing departments, plans, and material in a shipyard.

SHIP CONSTRUCTION

A ship is a complex structure requiring very exacting procedures from planning to ultimate completion (*4*). There is great need for coordination of plans, materials and labor among the 25 or more departments in a shipyard.

Ships differ in design and characteristics according to the purpose for which they are intended. These differences are accompanied by variations in the details of constructional techniques, but fundamentally ship construction can be broken down into certain basic operations common to all sizes and types of craft. Figure 2 illustrates the relationship among the various departments in a typical shipyard and the operations they perform.

The first step in ship construction is planning. Plans for all parts and equipment of a ship designed by naval architects and marine engineers are drawn in the drafting room and then routed to the several departments which may have work to do with them. At the same time the structural members, forgings, castings, plates and shapes are also routed to these departments.

The first stop on the route is the mold loft. The many steel plates and shapes making up a ship must fit together when assembled. This is assured by making a full-sized wooden pattern, called a mold or template, for almost every structural part of a ship before working the steel. In order to facilitate exact fitting of a member on the ship, certain lines and other markings are noted on the mold and later transferred to the materials. These markings show frame lines, base lines, water lines, cuts, bevels, location of stiffeners and brackets, weight of plate, etc. In short, everything that helps to identify the piece of material and everything that has to be done to the plate or shape before it is ready to be fitted to the ship, is shown on the mold.

Next, the plans from the drafting room, molds from the loft, and plates and shapes from the storage yard, go to the fabricating shop. This with the assembly section is the real heart of the shipyard. The "Fab" shop includes a plate shop and an anglesmith shop, the former working almost entirely on cold steel, the latter on hot steel. Here the huge flat sheets of steel are cut and bent to their proper shapes, punched and drilled to exact duplication of the molds with continual reference to the plans. Some of this fabricated material then passes to the storage spaces adjacent to the ship.

The rest of the prepared steel sheets move into the assembly building or outside onto assembly platforms where they are fitted into sections that will make up the completed vessel on the ways. When assembled these units are taken to storage spaces or directly to the ship depending on whether the progress of work on the ship is such that they may be erected at that time.

In recent years shop work and ground assembly have been increased wherever practicable because conditions in the shop are often more conducive to economical operation than conditions on the ship. This is the secret of high-speed production. By spacing the work far back from the ways themselves so that the ship can go together quickly in huge prefabricated sections, actual work on the ways can be speeded and simplified.

The structural building of the ship with the steel parts and assemblies which the fabricating shop has turned out is done on the building ways adjacent to the water's edge in order that launching may be facilitated when the hull is completed. It takes many other departments and craftsmen to complete the finished vessel; erectors, shipfitters, reamers and drillers, riveters, chippers and caulkers, and burners and welders.

The erector's job is to get all the steel parts on the ship when and where they are needed. The heavy members and preassembled units are hoisted by cranes to the ship, where they are temporarily fastened in their approximate locations.

It is then the shipfitter's work to fit these pieces together exactly as shown on the blueprints. Each of the structural members of a ship has a definite location and purpose and must be fastened in its proper place according to the methods shown on the plans. The shipfitter does this work with the aid of burners, tack welders and chippers. He also makes templates to actual dimensions on the ship when the dimensions vary slightly from those given on the blueprints.

The work of the reamer and driller consists of preparing all the holes for riveting. Most of the holes in the plate are punched undersize in the fabrication shop. Very often holes in one member do not line up exactly with the corresponding holes in another member to which the connection is being made and must be lined up for rivets by enlarging them to full size with reaming tools. Holes which were not punched or drilled in the shop must be drilled on the ship. The reaming and drilling work is done with air-driven tools.

Riveting is usually done by a gang of three men—a heater, a holder-on or bucker-up, and a riveter. The heater, using a forge and tongs, heats the rivets, by experience knowing how much heat is needed for each size and type. The heated rivet is then passed to the holder-on who inserts it in the hole and holds it firmly in place with a pneumatic jack. The riveter, on the opposite side of the pieces to be joined together, hits the protruding end of the rivet with a pneumatic hammer equipped with a die of such size and shape as to form the desired point. If the point is countersunk or flush he then cuts off any excess stock before it has cooled.

A chipper using an air hammer does cutting off or chipping, as it is called in shipbuilding, of very small amounts of excess stock on a piece of steel. He also does caulking, an operation which consists of the pounding or pressing together of steel with an air hammer and caulking chisel to make a watertight joint. The edges of riveted joints and flush rivets are usually caulked.

A burner, using a burning (oxy-acetylene) torch, cuts off all excess stock on plates, shapes, pipes, etc. In addition, he also cuts openings for air ports, pipes, cables, hatches, doors, etc. The operation is performed with both hand torches and automatic burning equipment.

A welder, as his name implies, welds those parts of the ship which, according to the plans, are to be so fastened. Most of his time is spent fastening together the structural parts of the ship. There is, however, a need for welders in almost all departments for both shop and ship work. A tack welder temporarily fastens together parts of the ship by means of short beads of weld called tacks, placed in spots marked on the members to be connected.

It might be well to mention at this point that prior to World War II most of the structural fastening of the ship's parts was accomplished by riveting operations. The tremendous pressures brought to bear upon the shipbuilding industry for faster production schedules induced an almost complete conversion from riveting to welding in ship construction. There were, and still are, many pros and cons on the subject of this change.

There would seem to be three schools of thought on the issue:

One group contends that the welded ship is a stepchild of necessity, that it is definitely inferior structurally to the riveted ship and has no place in peacetime shipbuilding when time is not at a premium and quality is paramount. This group maintains that welding produces distortion and buckling since, as a weld cools, it shrinks and draws the welded plates together. If these plates are not free to move they may buckle and locked-in strains may be set up in them with a consequent weakening of the structure of the ship.

Another group is of the opinion that improvement of the quality of the welds in the last few years has made most welded joints equal, if not superior to, riveted joints in strength. The solution of the buckling and internal stress problem, it is felt, has been found in many cases and further research and experiment should, in a relatively short time, completely eliminate this drawback. This group further contends that in addition to the saving in time and materials a substantial saving in weight is achieved by the welded method of constructing ships. This is most important in the construction of Navy ships where lightness and speed are of primary importance.

The third is a compromise group which is in partial agreement with each of the other two. It recognizes both merit and demerit in each type of construction and favors taking advantage of both to the fullest extent—weldments where they have been proven to be superior to riveted joints and rivets where all welding disadvantages have not yet been overcome. This faction will, during the near future at least, probably comprise the majority in the post-war shipbuilding industry.

Transferring a ship from slipway to the water is called launching. While the ship is being constructed it is supported by keel blocks and heavy wooden posts called shores. For launching, two or four runways of heavy timber, called the ground ways, are constructed under the entire length of the ship at equal distances port and starboard from the centerline. On top of these timbers is placed another set of timbers with blocks built up on top of them extending to the underside of the ship. These are called the sliding ways. At the forward and after ends are cradle-like structures called poppets which give added support at these points. The poppets, sliding ways and blocks combine to make up the cradle.

Between the sliding and ground ways is placed a layer of grease and tallow. Because the ground ways are built on a slope, usually ½ or ⅝ inch to the foot, steel tie-plates are usually attached, one end to the sliding ways and the other to the ground ways, to keep the ship from sliding prematurely into the water.

Sometime prior to launching, the blocks on the sliding ways are wedged up to take the weight of the ship off the keel blocks and shores and place it entirely on the sliding ways. Then the keel blocks and shores are removed. When the tie plates holding the whole structure are burned through, the ship and sliding ways, including poppets, slide down the greased ground ways. If the ship does not move it is started by hydraulic rams.

The rest of the work performed in connection with completing a ship is done after the launching in order to make the slipway available for the erection of another hull. This includes the engineering and outfitting phases. The method of performing this work differs to some extent among the various shipyards depending upon the type and size of the ship and sometimes upon the physical layout and facilities of the shipyard itself.

The engineering phase includes the installation of propulsion and auxiliary machinery, steering apparatus and all piping. The jobs in the shipyard performed by the engineering departments are too numerous to list in detail. Suffice it to mention a few. Piping includes installations designed for fresh water supply, sewage disposal, fuel and lubricating oil, firemain and sprinkling, flooding and salt water, scupper and drainage, cargo oil, steam, etc. Heavy machinery includes boilers, turbines, condensers, reduction gears, steering gear, windlass, capstans, etc. As previously mentioned, methods differ in various shipyards. Some of the machinery, especially the heavier or bulkier parts, is installed prior to launching, but the installations are always completed at the outfitting dock. In addition, there is the refrigerating system and the evaporator plant; uptakes, smoke stacks, and fuel-burning systems; shafting, propellers, bearings, and stuffing boxes; gages, ammunition hoists, elevators, guns, and hundreds of small parts which are installed along with this equipment.

In some cases the engineering work is done in the shops, with only the final installation taking place on the ship, while in others most of it is done on the ship. The current trend favors doing as little as possible on the ship because at this stage of the operations the ship is a beehive of activity, affording only cramped quarters in which to do work that can usually be accomplished with greater ease and efficiency in a relatively spacious shop.

Outfitting consists of installing living quarters, that is, lounges, recreation rooms and crew space, in certain sections of the ship set aside for that purpose. In these compartments are installed berths, lockers, dressers, lights, insulation, ventilation equipment, etc. The principal departments that do outfitting work are electrical, sheet metal, carpenter and joiner, and paint departments.

The electricians install all electrical cables, wiring, lights, fixtures and miscellaneous equipment on the ship for five main systems—lighting, power, interior communications, fire control, and radio. The sheet metal department is responsible for the installation of stowages, ventilation, insulation, etc.

Practically every department on a ship is ventilated by means of electrically driven fans and air pipes or ducts. The air ducts are usually fabricated in the shop out of sheet aluminum or steel, very often galvanized, and afterwards installed on the ship. This refers to the fixed or permanent internal ventilation of the ship and should not be confused with temporary ventilation employed during construction. Because compartments on a ship, especially those on the lower decks and near the centerline, are so closed in, the only way for fresh air to be supplied is by the use of blowers.

Large structural compartments are divided by aluminum, light metal, or wire mesh bulkheads which are installed by the sheet metal department. Insulation, usually of crumpled aluminum foil, cork or fiber glass, and covered with sheets of aluminum, is almost always installed on shell surfaces and under the weather decks in living quarters. Other jobs which the sheet metal department handles include the installation of certain kinds of hatches, lockers, bins, and racks in the store rooms, and installation of corrosion-resisting decks in the galley and wash rooms.

The carpenter and joiner departments do all the woodwork in a ship and also install miscellaneous equipment. Very important carpenter jobs are building staging outside and inside the ship for other departments to use, providing the shoring and supports under the ship as it is being built, and constructing the launch ways for launching. On ship the carpenters lay wood decks, if any, and complete the job by caulking and planing them. Lifeboat work and the installation of boat gear are usually done under the supervision of the carpenter department. Fancy woodwork, trimmings, wood railings, etc., are done by the joiner department.

The paint department does all the painting on ship and miscellaneous painting about the yard. The outside hull is painted while on the ways. The priming coat on United States Maritime Commission ships involves the use of red lead. Zinc chromate was selected for use on Navy ships. On some types of ships plastic or mercury anti-fouling paints are used below the water line.

THE ARC WELDING PROCESS

Description of arc welding

Welding may be defined as the joining of metal parts while the edges are in a molten state. A characteristic of welding is that the parts joined actually become fused into one, in many cases being stronger at the joint than in the original work metal. Of the various methods of welding in use, by far the most common is electric arc welding. This type using a metallic arc was the method employed by nearly all the shipyard welders studied.

In the metallic arc process, intense heat results when an electric arc passes a short distance through the air between the material being welded and a welding rod (electrode) manipulated by the welding operator. He touches the welding electrode to the work metal and then withdraws it a short distance, causing an electric arc to pass through the intervening space. The welding electrode is guided along the edges to be joined. The distance it is held from the work metal and the speed of movement largely determine the nature of the weld.

Figure 3 shows schematically the process involved in electric arc welding when a coated electrode is used. Under the intense heat developed by the arc a small part of the work metal is brought to the

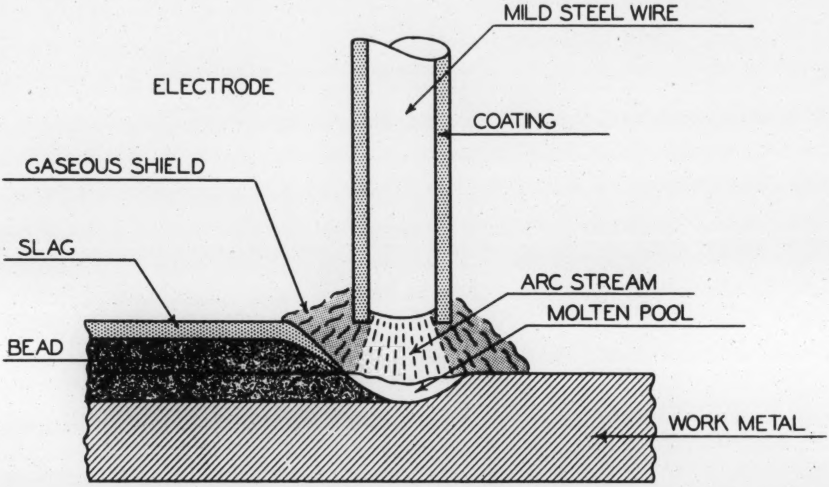

FIGURE 3.—Schematic diagram of the electric arc-welding process using a coated electrode.

melting point almost instantly. The other end of the arc, the tip of the metallic wire electrode, is likewise melted and tiny drops of molten metal form. These drops are then forced across the arc and are deposited in the molten pool. The fused work metal and electrode form an elevated strip of metal behind the moving electrode called a bead.

The coating of the electrode when vaporized forms a shield of inert gas which will not enter into chemical combination with the molten metal and at the same time prevents its contact with the atmospheric oxygen and nitrogen (figs. 3, 4). Welds made with a completely shielded arc are largely free of oxides and nitrides and are therefore composed of metal having superior physical characteristics to that deposited by an unshielded arc. Since the electrode coating is consumed in the arc at a slower rate than the mild steel wire, it extends beyond the metal core of the electrode and serves to direct and concentrate the arc stream. In addition, the action of the arc on the coating of the electrode results in a slag formation which floats on top of the molten metal. This slag tends to clear the weld metal of impurities and acts to prolong the cooling time, thereby producing a more ductile weld. The chemical composition of the electrode coat-

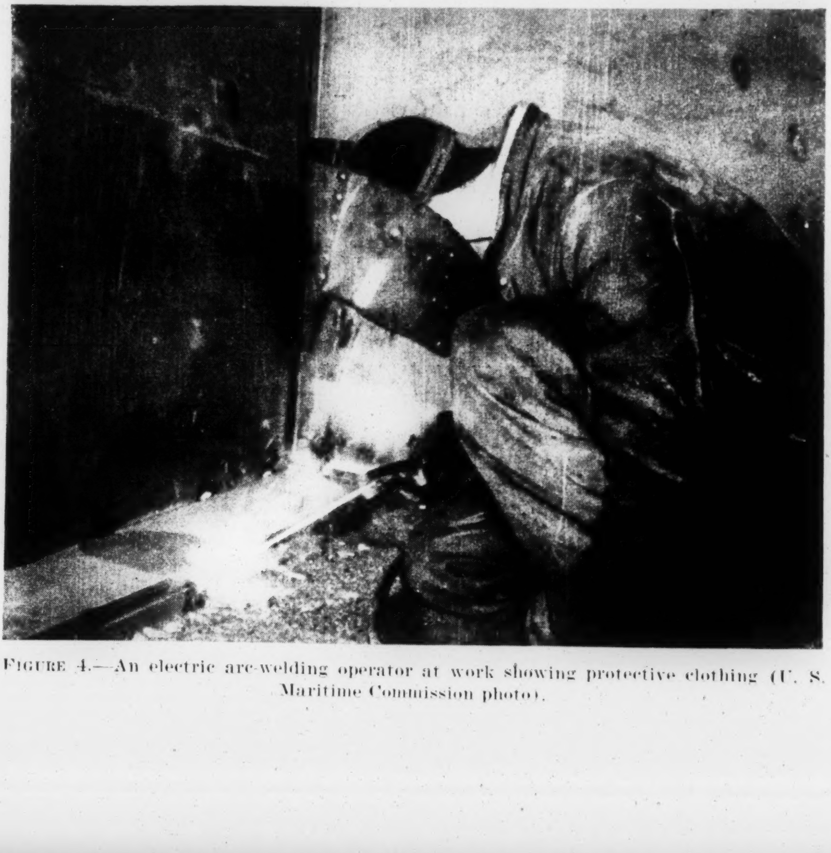

FIGURE 4.—An electric arc-welding operator at work showing protective clothing (U. S. Maritime Commission photo).

ing may be varied so as to replace original elements of the base metal lost in welding and to add other elements that will increase the quality of the weld.

History of arc welding

Electric arc welding was first used by De Meritens in 1881 to unite parts of storage batteries. A patent was issued to Bernardos in 1887 for an arc-welding process using a carbon electrode which was followed in 1889 by a process using a bare metallic electrode (*5*).

The commercial use of arc welding probably dates from 1910 and received a large impetus during emergency conditions of the First World War when the United States Navy used it for salvage and repair work. The first all-welded United States merchant ship was launched in 1940 (*6*). World War II greatly accelerated the use of electric arc welding in the United States not only as illustrated by increased consumption of welding electrodes but also by the increased number of persons needed to deposit the ever increasing amount of weld metal. Although the 1940 census showed a total of 124,700 welders and burners in all industries, they were estimated to number 364,000 in 1943 (*2*). It has been said that over 1,000,000 persons have learned something about welding during the war period.

Possibly 1,500,000 people were working in Government-owned, contract operated United States Maritime Commission or Navy Department shipyards at the peak of employment during 1943–44. It was estimated that the greatest number of welders employed in contract shipyards at any one time was 225,000. In March 1940, there were 9,000 welders employed in United States shipbuilding yards but in December 1943 there were 180,000 employed, an increase of nearly 2,000 percent.

Still another measure illustrating the markedly increased use of arc welding in steel fabrication is the consumption of welding electrodes. During 1940, approximately 200,000,000 pounds of electrodes were used in steel fabricating industries. By 1944, however, the poundage used had increased to 777,000,000 (*7*). From 1940 to 1944 the annual production of bare or lightly coated rods decreased 1.8 percent while the production of heavily coated rods was four times as great.

Welding electrodes

Electric arc welding of mild steel with coated electrodes has proved its efficacy as a tool in ship fabrication. To this technique (*8*) can be credited, to a large degree, the success of the shipbuilding industry in meeting the tremendous demands placed on it by the war effort. It has been estimated that 25 percent less time is required in the construction of naval and merchant vessels when the structures are welded instead of riveted (*8*). The rapid production of 30,000 vessels of all types, including more than 5,000 large ships of the Liberty, Victory and other classes, during the war period gives a relative measure of the amount of welding that has been performed. The herculean nature of this task may possibly be appreciated better when it is realized that a single Liberty ship (*9*) requires 30 linear miles of manual and 7½ miles of machine welding (fig. 5).

According to Lawrence (*10*) the majority of all the millions of pounds of metallic arc-welding electrodes used fall into the A. W. S.–A. S. T. M. E6010 classification and shipyards requisition more than one-half their electrodes in this grade. They are used for tack welding and later for seam welding. Inasmuch as the E6010 electrode approaches the status of a universal rod, it lends itself admirably to steel fabrication in shipyards where subassemblies are large and where the work frequently cannot be positioned for down-hand welding. Drinker and Nelson (*11*) describe E6010 as an all-position, direct current, reverse polarity electrode for use on common steel and galvanized iron. The most usual diameter for this electrode is $^3/_{16}$ inch followed by $^5/_{32}$ inch. The E6011 electrode is used on a. c. welding in all positions (vertically, overhead, or horizontally) but it accounts for only 2 percent of the total consumed in the United States. "Numbers E6012 and E6013 are known as cold electrodes and are used on straight polarity or on a. c. and account for 30 percent of the total used." Number E6020 electrodes are commonly referred to by the welding operator as "hot rods" because "they are used at high current densities resulting in high burn-off rates and deep penetration." They are adapted especially for down-hand or filet work, a. c. or d. c., and comprise less than 10 percent of the total output. The 6012 and 6020 electrodes most commonly used are one-fourth inch in diameter.

Manual arc welding in ship construction has been performed almost exclusively with coated electrodes which have been of commercial importance for the last 15 to 17 years (*12*). Apparently the use of this coated wire awaited the development of satisfactory electrode coatings and adequate electric generators.

The composition of electrode coating (*13*) is a trade secret. As the subject of electrode coating is extremely complex attention will be called only to some of the important characteristics. In machine

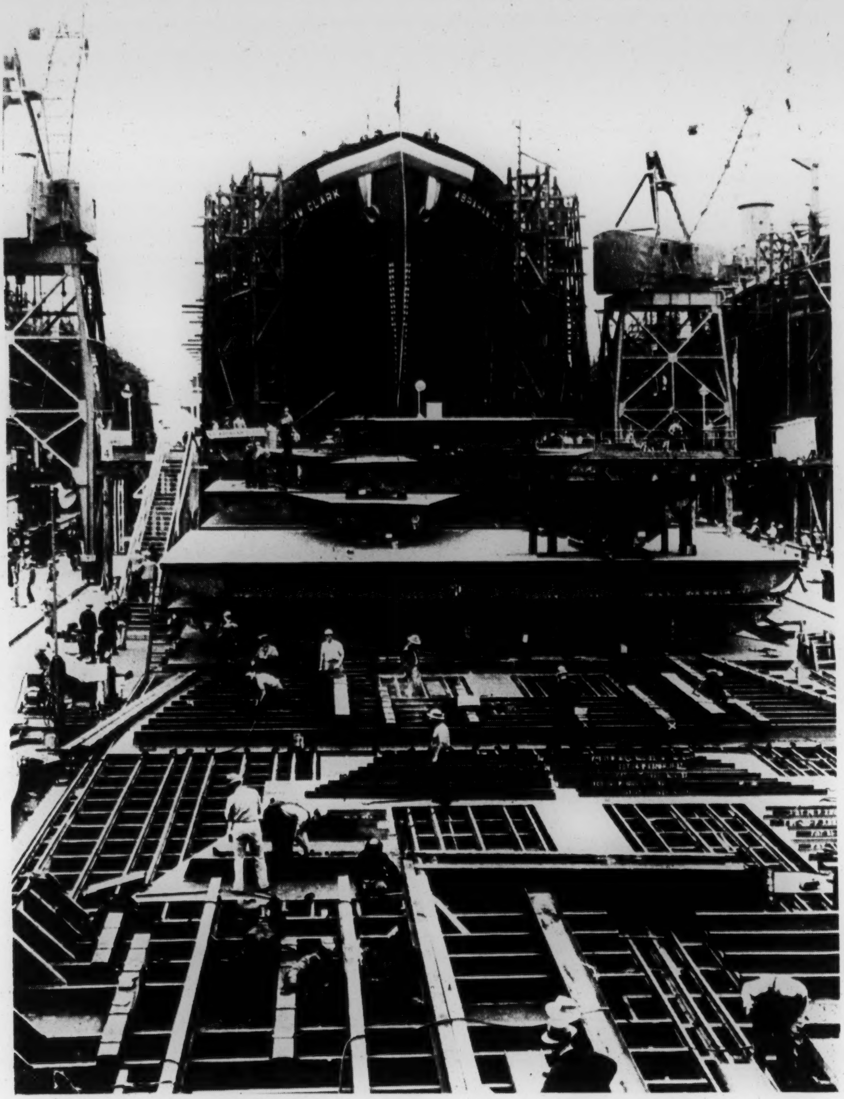

FIGURE 5.—A Liberty ship ready for launching, with men in the foreground who are working on a subassembly platform where double-bottom sections of other Liberty ships are being prefabricated (U. S. Maritime Commission photo).

operated welders (e.g. "Unionmelt") the arc is buried in chemically treated sand which provides source material for the gaseous shield.

A summary of analyses of electrode coatings assembled for Drinker and Nelson (*11*) by welding electrode manufacturers is reproduced in the following tabulation:

Electrode coatings	American Welding Society types				
	E6010	E6011	E6012 E6013[1]	E6020 E6030	Stainless
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
H_2O	Under 10	Under 10	Under 10	Under 10	Under 10
Sodium silicate	30–40	25–35	10–20	10–20	15–20
Cellulose	20–30	20–30	3–10	Under 5	
$MgSiO_3$	10–25	15–30	10–20	5–20	Under 10
TiO_2	10–20	10–35	30–50	Under 6	Under 10
Ferro Mn	10–20	5–10	Under 10	5–20	Under 10
MgO		5–10	Under 5	Under 5	
ZrO_2		Under 5	Under 5		
Al_2O_3 (clay)		5–7	5–11	Under 10	
SiO_2			15–20	10–30	Under 15
Feldspar			10–20		Under 10
Mica				10–20	
$CaCO_3$				Under 10	20–30
Iron Oxide				15–30	
MnO_2				10–25	
CaF_2					20–30
Mn					Under 10
Mo					Under 5
Cr					Under 5

[1] Note: E6013 same as E6012 except cellulose may be up to 25 percent.

According to Drinker and Nelson there are several items in the above tabulation which need explanation. "The moisture content is not constant, as the temperature at which the coatings are baked can be varied over a considerable range. Sodium silicate is the binder which is common to all coatings. Magnesium silicate, clay, asbestos, mica, and feldspar are used variously. Thus, a manufacturer can use the mineral feldspar or he can use a combination of several silicates to give substantially the same result. Titanium dioxide, usually as the mineral rutile, is a common agent for arc stabilization, and may contain some zirconium dioxide as an impurity. Manganese, as ferromanganese, is added as a deoxidizer. Silica is not used as such but is present both as a mineral silicate and in sodium silicate. Calcium carbonate as limestone is used for slagging and is especially important in the stainless steel electrodes. These latter all contain calcium fluoride, usually as the mineral fluorspar."

The composition of the wire used in all E6000 mild steel and stainless steel electrodes is shown in the following tabulation:

Chemical Element	Mild Steel (E6000)	Stainless Steel
	Percent	*Percent*
C	0.7–0.25	0.07–0.25
Mn	0.40–0.60	0.40–2.5
Si	0–0.30	0.20–0.60
S	0–0.035	0–0.035
P	0–0.035	0–0.035
Cr		18–26
Ni		8–21
Fe	Balance	Balance

Gases and fumes evolved

In the welding of mild steel with all of the E6000 electrodes, the fumes evolved contain (*11*, *14*) about 60 to 70 percent of $Fe_2O_3 + TiO_2$, from 10 to 30 percent SiO_2, and from 2 to 12 percent MnO_2. These investigators have also noted that when galvanized steel is arc-welded, the total fumes increase with the introduction of some 65 percent ZnO and a corresponding drop in $Fe_2O_3 + TiO_2$, MnO_2 and SiO_2 (Figs. 6, 7).

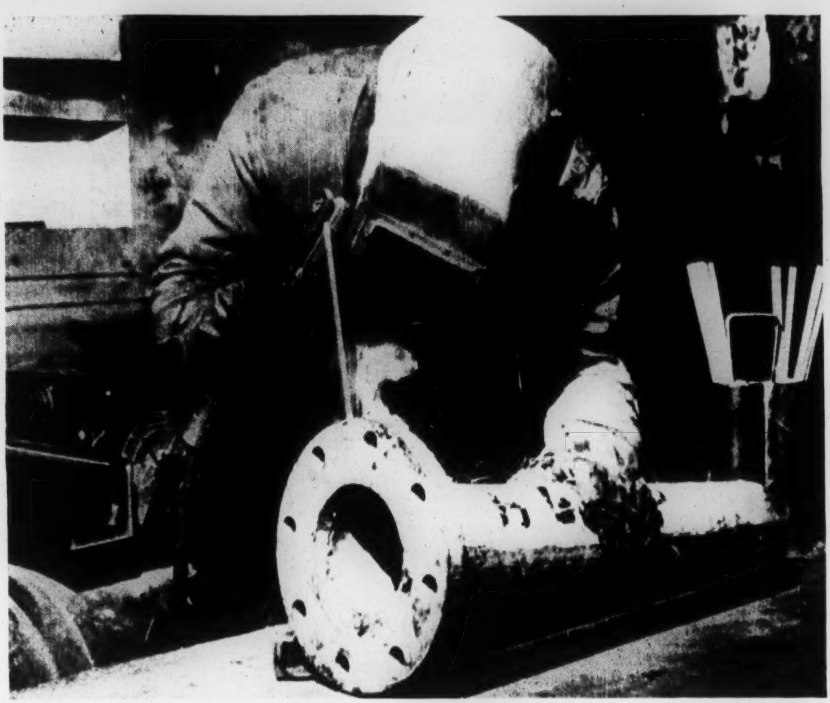

FIGURE 6.—A pipe welding operation without the use of local exhaust ventilation (U. S. Maritime Commission photo).

Like the acetylene torch, the electric arc fixes some nitrogen from the air as oxides. Less NO_2 is reportedly formed with the coated than with uncoated electrodes. Carbon dioxide, carbon monoxide and water vapor are also evolved, but according to Drinker and Nelson (*11*) carbon monoxide is not given off in hygienically significant amounts. They add "in explaining the shielding action of the products of combustion of the coatings, welding experts suggest CO is formed and then converted to CO_2 on leaving the immediate vicinity of the arc." Hydrogen fluoride might be expected to evolve from the coatings of stainless steel electrodes yet on tests Drinker and Nelson found no HF although other fluoride compounds were demonstrated.

It is thought that the above cover the main gases and fumes evolved on welding uncoated mild steel. Other metals besides zinc used in coating the work metal or in electrode coatings may be present in the fume as oxides. Among these are lead and cadmium. See page 42.

Other health and accident hazards

Other health and accident hazards relate mainly to radiant energy and electric shock. Inasmuch as this inquiry was directed primarily at respiratory hazards arising from gases and fumes, only brief reference will be made to radiant energy in connection with skin and eye affections and accidents will not be discussed.

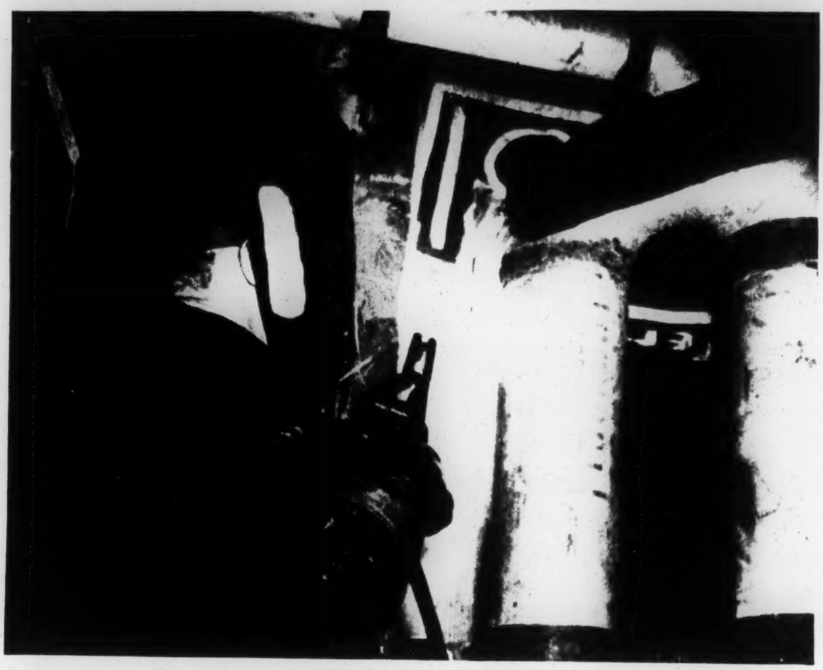

FIGURE 7.—A pipe welding operation with the use of local exhaust ventilation (U. S. Maritime Commission photo).

VENTILATION IN SHIPBUILDING

The following is intended to present the manner in which the shipbuilding industry was dealing with the two-fold problem of air contamination and high air temperature—byproducts of many of the operations described in the previous ship construction section.

It will be apparent that what is described in the succeeding pages is an ideal and not an accomplished fact. Many of the shipyards visited during this survey had sucessfully adopted most of the features of the standard ventilation procedure; others had shown only slight interest in the tremendous incentive to production inherent in an efficient temporary ventilation system.

This report omits any comparison of the respective ventilation systems found in the various shipyards inspected. It was realized that such a comparison would be unfair and of little practical value, and would, further, be valid only to the extent that personal opinions formed during a relatively few days are reliable. It was, therefore, determined to refrain from any evaluation of ventilation efficiency so far as the text of this report is concerned, and allow the effectiveness of the ventilation systems of the various shipyards to be indicated entirely by the air sampling results.

The following section is therefore presented in the same spirit as that devoted to shipbuilding methods: as a guide, and to provide some substance to the problems with which shipbuilders were faced during the war.

The first step in the setting up of a standard ventilation procedure is the organization of a ventilation department, which should have only ventilation duties to perform. Ventilation has been found to suffer when safety inspectors, electrical maintenance crews, etc., were burdened with the dual responsibility of ventilation and their primary duties.

The ventilation department should have operative, not administrative functions, and should report to production supervision. The craft under which the ventilation department is to be organized is optional, but it has been observed that a ventilation crew composed of electricians is most satisfactory since such a crew can perform not only the functions of installation and operation of the ventilation equipment, but also can make necessary electrical connections, and can repair and maintain the blower equipment.

To put into effect the standard ventilation system it was recommended that the ventilation crew consist of at least a supervisor and one helper per hull on the ways or at the outfitting dock. Ventilation duties on each hull require the full time of this two-man crew. Transportation and repair of equipment require additional personnel who may be but are not necessarily attached to the ventilation department.

Members of the ventilation crew were made thoroughly familiar with the standard ventilation procedure and were able to install all ventilation equipment on the hulls in close conformity with this procedure. They were required to anticipate demands for blower equipment on hulls to which they were assigned and order it delivered accordingly. When time permitted they performed the duties of ventilation inspectors making regular trips through the hull to observe the operation of equipment and to determine locations where additional ventilation might be required.

In order that the standard ventilation procedure be most effective, no person other than a member of the ventilation crew was permitted to move ventilation equipment.

When a standard ventilation procedure had been designed to meet the needs of the particular type of vessel under construction a ventilation manual was prepared containing detailed description of location, size and type of all blowers, ducts and equipment used during each stage of the construction sequence.

In general, the ventilation system should provide for reduction of air contamination and for control of extreme temperatures. Although the details of the standard ventilation procedure vary with each type of craft, the following may be assumed to be applicable to all cases:

1. It has been found most satisfactory to use general ventilation as far as possible. Local exhaust ventilation requires the welder to cooperate in its use and since this cooperation is frequently not forthcoming the ventilation suffers accordingly.

2. In preparing a standard ventilation procedure, the hull should be divided into sections and ventilation designed for each section individually. The innerbottoms, all tanks, cofferdams, and fore- and after-peaks should receive special attention.

3. The amount of ventilation supplied to a given compartment should be determined by extreme conditions anticipated and not by average conditions. One air change every 1 to 4 minutes may be used as a guide for all locations.

4. For ventilation of holds metal duct of approximately 18 inch diameter is recommended. It is most durable, easiest to install, and

delivers the greatest volume of air. For convenience in handling the duct should be made in short sections.

5. The fittings for all ducts should be designed most carefully with attention to strength and speed of handling. Section couplings can be designed which can be installed without tools in a matter of seconds, and are preferable to nut and bolt couplings. The duct outlets should be designed to deliver the greatest quantity of air. Pipe dampers may be used to close off air outlets to spaces not being worked, or to reduce air flows in cold weather.

6. All duct sections, elbows, reducers, adapters, couplings, etc., should be standardized and designated by part number. A standard installation for a given space may thus be described completely by the use of part numbers from the fan to the end of the duct.

7. A standard nomenclature for blowers should be adopted. All blowers of a given design should be given a type symbol and a shop number, both of which should be painted prominently on the fan base. The blower type to be used for ventilation of a specific location may thus be indicated by symbol on the blueprint.

8. Where structural strength of the hull permits, temporary access holes should be cut for use with ventilation equipment. The contribution of this step to the over-all ventilation picture has been considerable. In the beginning, ventilation departments were reluctant to cut access holes fearing an impairment of structural strength of the vessel. When it became common knowledge in all shipyards that some had employed the practice successfully, resistance to its adoption was broken down, and progress was accelerated.

9. The standard ventilation procedure should be blueprinted in final form, and no deviation from this standard procedure should be permitted individual members of the ventilation crew. It has been found valuable to provide each ventilation man with small copies of these blueprints which he may carry with him in a pocket-size field notebook.

10. Portability of equipment is an advantage until the equipment is placed in position when it may become a disadvantage by making it easy for members of other crafts to move it at their discretion. To eliminate this possibility equipment should be tack-welded in place. The ventilation of any compartment should begin when work in that compartment begins and should not be removed until work in that compartment is completed.

11. The ventilation of many compartments will not require duct work but may be through direct connection from the blower to the temporary access hole provided. Blowers designed for this direct

connection should be equipped with a transition piece fitting both the discharge end of the blower and the temporary access hole.

12. A crane lift schedule should be devised which will assure the delivery of necessary blower equipment in sequence corresponding with the hull erection sequence.

13. In order to operate efficiently considerable flexibility in the movement of equipment must be permitted the ventilation department. A driver and light pick-up truck should be placed at their disposal.

14. Blower equipment should be adequate in quantity and design to permit the carrying out of standard ventilation procedures in all locations on every hull.

15. To operate most efficiently a material control procedure should be adopted by the ventilation department which will provide for perpetual inventory, location charts, requests for ventilation and requests for maintenance.

(*a*) The object of perpetual inventory is to keep the ventilation foreman advised concerning the number and symbol of all blowers on all hulls. An inventory report should be designed to be filled out by the ventilation man on each hull. By using the inventory sheet, demands for equipment can be taken care of without the delay involved in searching through several hulls for the desired units.

(*b*) A location chart is a constant check on the actual operation of the standard ventilation system. It is one of the most useful of all the records maintained by the department. Various shipyards have developed different procedures for maintaining the location chart but common to all methods is the requirement that each blower unit must be given an identifying symbol and unit number. When filled out by the ventilation men on the respective hulls, the chart shows the exact location, number and model of every unit in operation on the hull at the end of each shift.

A second and even more successful chart consists of an inboard profile of the hull on a standard 8½ inch x 11 inch sheet. All locations of blowers in the standard ventilation procedure are indicated on the profile plan. The ventilation man at the conclusion of his shift fills in the unit symbol and number of every blower on his hull at the appropriate location on the chart. This graphic form of location chart is clearer to read than the tabular form. It represents the complete ventilation system on any given hull at a glance.

(*c*) Requests for additional ventilation equipment will frequently be forthcoming from welders, painters, shrinkers, etc. Mimeographed or dittoed cards for recording requests should be placed in convenient positions on each hull. Unless such requests receive prompt attention, the use of these forms will cease. The ventilation man, therefore, should frequently check each station.

(*d*) A maintenance request form is valuable in those shipyards in which the craft doing ventilation work does not perform needed electrical repairs. The form may consist of a tag of distinctive color, the top part of which is attached to the equipment needing servicing, and the bottom half is retained by the ventilation department. Minor servicing is expected to be performed on the hulls and no form need be issued.

Unquestionably the application of standard ventilation procedures has made an appreciable contribution to production and employee morale.

MEDICAL REPORTS ON THE RELATION OF WELDING TO HEALTH

Arc welding has generally been regarded as a relatively safe operation insofar as the respiratory hazard is concerned. Nevertheless all gradations of illness from minor, transitory irritation of the respiratory tract to fatalities following work under poorly ventilated conditions have been recorded in the literature. As many reports deal with both gas and arc welding, one should be cognizant of the ill effects which are attributable to each process or are common to both. Some reports deal with only the effects induced by the gaseous component of the welding fume which contaminates the air being breathed; other reports primarily deal with the particulate component of the fume and naturally lead to a discussion of the pneumoconiosis peculiar to welders; still other reports deal, in whole or in part, with the effects on organs other than the respiratory tract exhibited by a general systemic reaction to the inhaled welding fume. The latter is dramatically exemplified by the zinc or galvo-fever.

In these brief notes citing the observations of other investigators no attempt is made to present a complete literature review. Instead, selected references will be given to show the general trend of thought here and abroad on the toxicity of welding gases and fumes, having in mind that for the purpose of this investigation, the effect of the air contaminants arising out of the use of coated electrodes on black iron (mild steel) and on galvanized mild steel is of special interest. The selection of references is also governed in some respects on the accessibility of these printed accounts to readers. A few foreign references are cited to highlight certain findings. Reference will be made to animal experimental data where the findings help to elucidate some fundamental point.

A comprehensive review of the literature dealing with the effects of welding on health was presented by Britton and Walsh (*15*) covering the period up to 1940. This account appeared after electric arc welding was an established procedure (*16*) and was also subsequent to the more general use of coated electrodes in steel fabrication. Most investigators (*15, 17, 18*) have classified welding injuries according to hazard into groups covered in four categories, namely (1) electric shock and burns, (2) radiant energy, (3) gases, fumes and dust and (4) miscellaneous.

Although occasional reports (*19*) had appeared earlier in the literature, the studies by Drinker and his coworkers (*20*) (1935) focused attention on the respiratory hazards of electric arc welding. This series of reports was followed in 1936 by the Doig and McLaughlin (*21*) paper calling attention to pulmonic changes demonstrable by X-ray. The Enzer and Sander (*22*) report on the necropsy findings showed that striking roentgenographic markings not unlike silicosis changes could occur without appreciable pulmonary fibrosis, and in their opinion the changes observed in the chest X-ray were due to the deposition of iron in the lung tissue.

Consideration is given to the toxic action of nitrogen oxides since they are evolved in the arc-welding process. Their presence in the welder's immediate work place has been demonstrated by investigators (*20*, *23*). Details on the clinical manifestations and general toxic action of the oxides of nitrogen at wide concentration ranges are included in von Oettingen's review (*24*). According to the classification of Henderson and Haggard (*25*) the oxides of nitrogen belong to the group of primary irritant gases which act primarily upon the lungs and to a lesser extent upon the upper respiratory tract. In contact with moisture they are converted to nitric acid and this acid reacts with the alkali in the tissue of the respiratory tract giving rise to the irritating action. Nitrate and nitrite, mainly as sodium salts, are formed by the process of neutralization. The nitrite exerts a systemic action which is manifested by dilatation of arteries, fall in blood pressure, vertigo and headache. These authors assert that this systemic effect is obscured during acute poisoning, for example pulmonary edema. Habituation to nitrite effect also occurs, but this state does not render the lungs less sensitive to the irritative action of high concentrations of the gas.

Cranch and Vosburgh (*26*) reviewed the real and imaginary sources of injury and indicated with reference to arc welding that the gas hazards include oxides of nitrogen, misuse of oxygen for ventilating confined spaces, carbon dioxide, carbon monoxide and ozone. These authors note that although the presence of ozone has been demonstrated in and near the arc it rapidly ceases to exist as such on leaving the arc. Hence, in their opinion, it is doubtful whether it is more than a theoretical hazard. Carbon dioxide according to the same authors never occurs during arc welding in concentrations of physiologic importance. They admit that the status of carbon monoxide as a welding hazard is controversial, but after careful weighing of various reports they conclude that the danger of a significant concentration is very slight under ordinary conditions of welding. These same authors comment on maximum allowable concentrations of oxides of nitrogen and state: "Certainly a study of available evidence indicates that in welding operations concentrations of 50 p. p. m. or less have not produced symptoms, and that probably under many conditions this amount may be exceeded without harm." A few cases of fatal illness have been reported, the earliest of which was by Adler-Herzmark (*27*) in 1929 and was thought by the author to be partly due to carbon monoxide as well as to the oxides of nitrogen. However, others who have studied her report feel that death was caused by pulmonary edema resulting from the fumes of the oxides of nitrogen alone. Williman (*20*) reported a fatal case in 1935 and Wright-Smith (*28*) another in 1939. All of these deaths occurred after work in confined, relatively unventilated spaces and all were due to an acute pulmonary involvement, (acute pulmonary edema?) which was probably caused by oxides of nitrogen.

Reports from widely separated geographic areas have been written by local physicians describing a syndrome popularly called "shipyard sickness," "galvanize poisoning" and a myriad of other descriptive terms. In reality, they have most often been describing cases of metal fume fever in its various stages. These articles (*3*, *29*, *30*, *31*, *32*, *33*, *34*, *35*) were written to focus the attention of physicians in the vicinity of shipyards on the nature of the illnesses which the welder is prone to develop. They emphasize the cause of metal fume fever, its transient and apparently benign nature and particularly stress preventive measures.

Chronic pulmonic changes and the radiologic evidence of these changes are discussed at length by English and American authors (*21*, *22*, *36*, *37*, *38*, *39*, *90*, *104*). The typical radio-opacities of employees' lungs who, because of their employment inhale some ferric oxide, appear quite similar no matter whether they be employed as welders, hematite ore miners, or mirror and silver polishers using rouge. By definition these pulmonic changes are termed "siderosis." However, on pathologic section some cases have shown pigmentation plus fibrosis and varying degrees of disability, while others have shown only peri-vascular and peri-bronchial deposits of an iron-bearing pigment, and no evidence of disability whatsoever. It has been reported that the siderosis developing from exposure to welding fumes alone does not demonstrate any fibrosis.

Other investigators have studied pneumonia among shipyard welders (*40*) and find no increased incidence of this disease or any increase in the morbidity rate for all causes for welders compared with those of the general group of shipyard employees.

Koelsch (*41*) (1941) examined 40 electric welders and found that 18 (14 men and 4 women) showed no evidence of dust deposition, 18 men showed slight dust deposition, 3 men had well established dust deposition and 1 man, aged 31, showed marked pneumoconiosis. Those with slight dust deposition had worked about 4 years, the men with well established dust deposition had welded 5 years, and the 1 man with marked pneumonconiosis had worked 7 years as a welder. The roentgenogram of the latter showed many lentil-sized, medium dense, sharply demarcated shadows which do not become confluent in both right and left middle and upper lung fields. Koelsch notes that subjective symptoms are not startling but there is evidence of bronchitis, irritative cough—productive especially in the morning, and fume-stained sputum. He suggests that chronic bronchitis with emphysema may possibly lead to dyspnea and related respiratory distress.

Britton and Walsh (*15*) studied 286 welders who had an average of 9 years' service. Mottling or stippling of lung fields was noted in 24, or 8.4 percent, of the chest roentgenograms. In their opinion the X-ray changes were not accompanied by disability. They likewise were unable to demonstrate an excess of sick absenteeism among welders when compared to other industrial workers.

Saupe (*42*) (1942) in his radiographic studies of several hundred electro-welders found pathologic changes in lungs reminiscent in part of silicotic and in part of asbestotic changes. The first type show mottling or spotting not unlike classical silicosis whereas the second type show exaggerated lung-field markings manifested by extremely fine shadows resembling stippling and including a veiling of deep lung areas. Saupe lists the following symptoms as occurring in electro-welders: cough, expectoration, constriction of chest, hoarseness, tendency to sweat, headache and dizziness. He asserts that those symptoms recede rapidly after work is abandoned.

Breitenbach (*43*) (1942) at the end of 1938 and beginning of 1939 studied 48 electro-welders who were selected in an industrial medical clinic from those welders who had worked several years under unfavorable conditions. Complaints frequently occurring in his case histories include fatigue, drowsiness, nausea, gastric discomfort, tendency to catarrh of the upper respiratory passages, rheumatism, nervous cardiac difficulties, headaches, and dizziness. Blood changes were equivocal. Concerning chest X-ray changes he noted that many roentgenograms showed increased peribronchitic markings. He also cites cases in which abnormal markings in the middle and upper lung fields are manifested as small flecks or nodules which are strikingly delicate in contrast to silicosis nodulation.

Tschauder (*44*) (1942) observed 1,000 cold metal workers for an average of 12 years, 300 electro-welders for 7 years and 238 autogenous (gas) welders for an average of 8 years. Throat affections, influenza, influenzal pneumonia, bronchial catarrh, pleurisy, muscular rheumatism and pulmonary tuberculosis were found causes of higher morbidity (inability to work) among electro-welders than the other two groups. Both groups of welders showed a definitely higher morbidity for furunculosis than cold metal workers. Morbidity due to eye diseases was low suggesting adequate eye protection.

Waniek and Roosen (*45*) (1944) cite the same statistics presented by Tschauder but add a group of 675 foundry workers. The increased tendency of electro-welders to respiratory afflictions is connected with constant inhalation of irritating and noxious fumes and vapors. These authors were unable to confirm Rösing's observation that electro-welders become ill with gastric ailments more than three times as often as autogenous welders.

Another well documented and critical report from European literature is that of Schiötz (*46*) (1945) who presents findings on both gas or autogenous welding and arc welding. This author asserts that "in no other occupation are the workers liable to inhale such large quantities of ferric oxide as during electric welding in confined spaces." He also points out that poisoning or other occupational diseases among electric welders may be due to inhalation of welding smoke (which consists of gases from the arc flame, vapors from the electrode metal and from the coating of the electrode and vapors from the metal which is being worked) and to rays from the arc, especially ultraviolet radiation which gives rise to "electric ophthalmia." Irritation phenomena in the upper air passages and digestive troubles are reported as being prominent features.

Zapfel (*47*) (1944) in his review of literature cites ocular troubles, damage to lungs, acute and chronic toxic accidents (founder's fever) and finally changes in the blood. The latter include polycythemia, leucocytosis, anemias and leukemias. The polyglobulia (polycythemia) is secondary to respiratory anoxemia, the leucocytosis is connected with hyperpyrexia, and the anemias and leukemias are the result of a myelotoxicosis.

Feil (*48*) (1946) notes that French and other foreign literature (*49*) contains information on blood dyscrasias of welders which may be grouped into four categories (1) polycythemia, (2) leucocytosis, (3) anemia and (4) Hodgkin's disease or leukemia, but questions the meaning of these hemopathies. He summarizes two studies performed in 1940 and 1944 which included observations on 66 and 62 arc welders, respectively, and concludes that blood findings in these welders do not differ from other industrial employees. He feels that many of the reports of hemopathies which imply an occupational connection could have occurred coincidentally.

An extensive clinical investigation was conducted by the United States Navy (*50*) in 10 Government-owned and Government-operated shipyards during July and August 1944. Examinations were performed on 4,949 employees and included reports on 1,162 welders and burners, on over 2,700 electricians, machinists, pipefitters and sheet metal workers and on 980 laborers, riggers and clerks. More than 95 percent had worked more than 2 years in their respective trades and as regards location of work the employees were about equally divided between shop and hull. No abnormal incidence of upper respiratory illness was observed in any trade. Based on medical history, the highest incidence of metal fume fever occurred in welders. The reports on chest X-rays were normal on 96.3 percent of welders and burners and was the same for all groups considered as a whole. There was no excess of tuberculosis among welders. Hence it was concluded that there were no indications of lung diseases that could be attributed to the inhalation of welding fume, gases or vapors either among workers employed at welding or in other trades.

Hegsted, McKibbin and Drinker (*51*) (1945) in their article discussing the biological significance of zinc cite a number of reports where metal fume fever or galvo-fever has occurred in welders working on galvanized metal. They observe, however, that no new facts have appeared relative to zinc chills or metal fume fever. They estimate that chills will not occur if the atmospheric levels of zinc are kept below 15 mg. per cubic meter of air.

The animal experiments of Titus, Warren and Drinker (*20*) (1935) have shown that the cause of pulmonary edema and other forms of intense inflammation of respiratory tract is not the particulate iron oxide, but is due to the gases generated by the arc—probably nitrogen peroxide and ozone. Later work by other investigators (*23*, *52*, *53*) more clearly defines the role of the oxides of nitrogen as an etiologic factor in the illness of welders.

PROCEDURE

MEDICAL

Scheduling the examination

An effort was made to examine 5,000 workers in certain crafts which were selected by sampling methods discussed in the following section. Reporting for the examination was voluntary on the part of the employees and in general the response was good, which was largely due to the fact that the examinations were carried on during working hours. Furthermore, all time consumed by the examinations was paid for by the United States Maritime Commission or the United States Navy.

A list of names, described under "Sampling methods for worker selection," was furnished the chief of the survey party just before the medical examinations were initiated at each yard. A copy of the entire list was ordinarily furnished the timekeeper of the shipyard, and he was directed to send, at stated times, a specified number of these workers to the improvised intra-yard clinic facilities at a ratio of three welders to one nonwelder. Ordinarily seven examination sessions were conducted each day. As the individual examination required approximately 1 hour, workers reported on the hour. For example, if 56 men were to be examined on a day shift, 8 of them (6 welders and 2 nonwelders) were directed to report at each of the following hours: 0800, 0900, 1000, 1100, 1300, 1400, and 1500. Notification was accomplished by means of a mimeographed notice attached to the worker's time card which he received when he reported for work. In general, this procedure operated very satisfactorily. It was usually necessary to request about 10 percent more persons each day than were needed to compensate for those who were absent or who for other reasons would not report for examination.

Inasmuch as the failures to appear for examination did not follow a regular pattern, as well as for other reasons, a tally of the case records was made at the completion of each day of clinical work to determine what proportion of men and women, and welders and nonwelders, had reported for examination. The tally also served to maintain equality between the proportion of workers sampled from the first, second, or third shift. By this method, it was possible to determine if the ratios of male-female and welder-nonwelder, originally planned, were being adhered to. At times it was necessary to call workers from one shift to compensate for deficiencies on a previous shift. Because of this, the proportions originally planned could not always be attained.

Quarters for medical examinations and field laboratories were set up in the shipyards in the most suitable available space. Clerical assistance was provided by the personnel division of each yard and a nurse from the medical department was usually present to assist with the examination of women employees.

Securing general information

Workers were taken from all shifts in current operation and the entire medical, laboratory, clerical, and nursing staffs were present during the hours the workers were scheduled to report. As each worker appeared for the examination he was seen by the clerical staff who accepted him only on presentation of his notification slip. A clerk assigned him an examination number and recorded on page 1 of his medical record (fig. 8) general information (name, date, age, sex, marital status, etc.), occupational history, living arrangements, and habits. In the case of female employees, the menstrual history was recorded. A clerk also questioned the employee in regard to previous illnesses. Temperature, height, weight, and the screening vision test (Keystone Telebinocular) (*54*) were determined and recorded by the nurse. The employee was then presented with his medical record form, route slip, and serologic slip (each bearing identical numbers), and directed to the laboratory where a physician obtained blood and urine specimens. He was then directed to an examining room where the physical examination was performed.

The occupational history consisted of a complete chronologic account of his or her occupations from the time of first employment up to the present. Special attention was focused on occupations involving exposures to toxic materials which might in any way influence the findings of this examination. Particular emphasis was placed on past occupations such as mining, sand blasting, quarry work, stone crushing, painting, and lead burning. Further questioning with reference to exact occupation and length of exposure followed a history of employment in any of these occupations.

The past medical history consisted of information relative to exposure to and contraction of certain communicable diseases and other conditions with sequelae which might influence the findings of this survey or might impair the usefulness of the employee in his present occupation. Injuries and operations also were recorded.

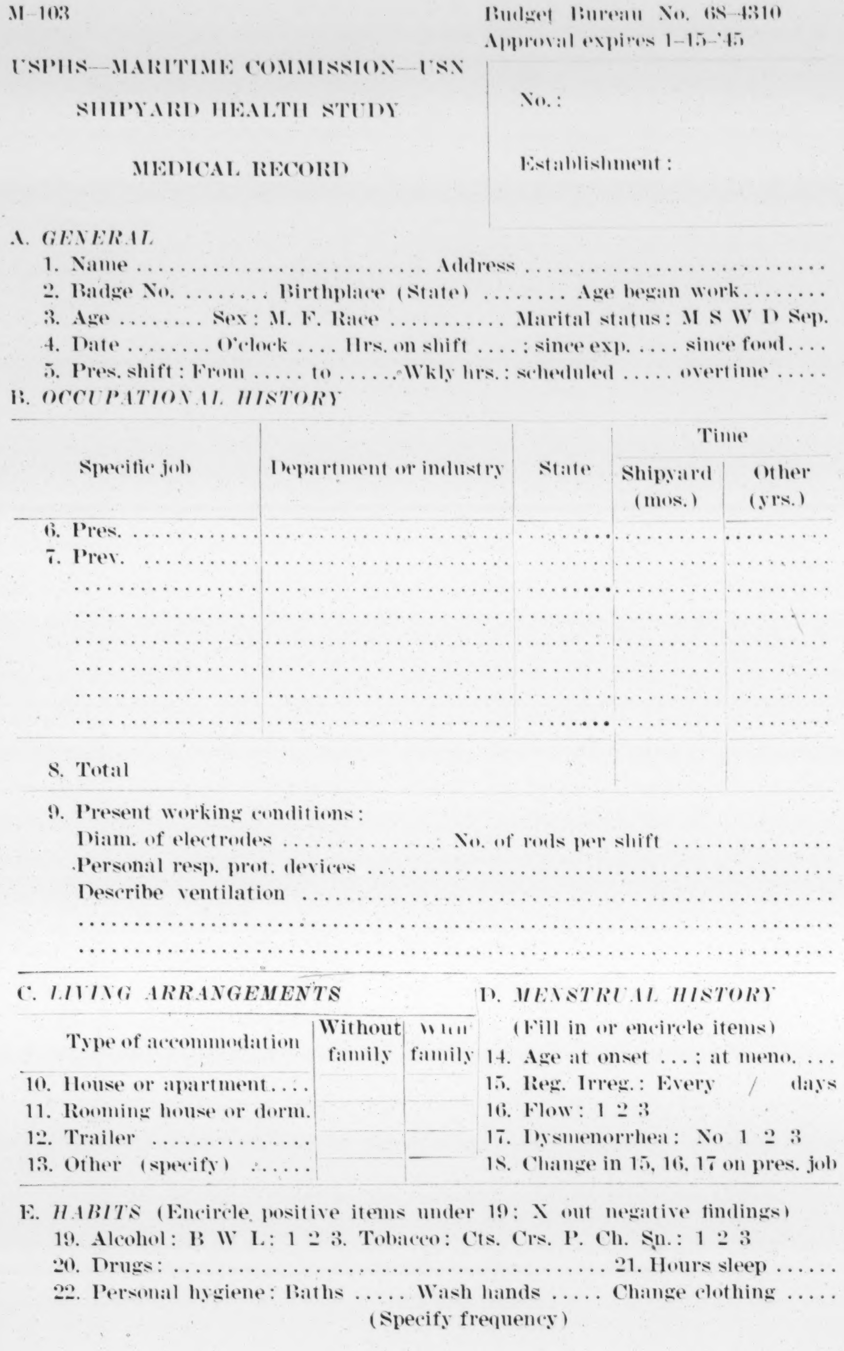

FIGURE 8. Form used for recording medical information secured in the shipyard health survey.

M-103

Budget Bureau No. 68-4310
Approval expires 1-15-'45

USPHS—MARITIME COMMISSION—USN

SHIPYARD HEALTH STUDY

MEDICAL RECORD

No.:

Establishment:

A. *GENERAL*

1. Name .... Address ....
2. Badge No. .... Birthplace (State) .... Age began work........
3. Age .... Sex: M. F. Race .... Marital status: M S W D Sep.
4. Date .... O'clock .... Hrs. on shift ....; since exp. .... since food....
5. Pres. shift: From ..... to ..... Wkly hrs.: scheduled ..... overtime .....

B. *OCCUPATIONAL HISTORY*

Specific job	Department or industry	State	Time	
			Shipyard (mos.)	Other (yrs.)
6. Pres.	....	....	....	....
7. Prev.	....	....	....	....
....	....	....	....	....
....	....	....	....	....
....	....	....	....	....
....	....	....	....	....
....	....	....	....	....
....	....	....	....	....
8. Total				

9. Present working conditions:
Diam. of electrodes .... No. of rods per shift ....
Personal resp. prot. devices ....
Describe ventilation ....
....
....

C. *LIVING ARRANGEMENTS*

Type of accommodation	Without family	With family
10. House or apartment......		
11. Rooming house or dorm.		
12. Trailer		
13. Other (specify)		

D. *MENSTRUAL HISTORY*

(Fill in or encircle items)

14. Age at onset ...; at meno. ...
15. Reg. Irreg.: Every / days
16. Flow: 1 2 3
17. Dysmenorrhea: No 1 2 3
18. Change in 15, 16, 17 on pres. job

E. *HABITS* (Encircle positive items under 19; X out negative findings)

19. Alcohol: B W L: 1 2 3. Tobacco: Cts. Crs. P. Ch. Sn.: 1 2 3
20. Drugs: .... 21. Hours sleep ......
22. Personal hygiene: Baths ..... Wash hands ..... Change clothing .....
(Specify frequency)

F. *PREVIOUS ILLNESSES, INJURIES, OR OPERATIONS* (Record severity and year)

23. Pneumonia ....
24. Tuberculosis ....
25. Asthma ....
26. Sinus infection ....
27. Skin disease ....
28. Rheumatism ....
29. Fractures ....
30. Operations (specify) ....
31. Other (specify) ....

G. *SYMPTOMATOLOGY* (P.I.) (Record severity & duration; encircle pos. and X out neg. findings)

32. GENERAL: Weak .... Pale .... Malaise .... Drowsy .... Cyanosis ....
33. NERV.: Vert. ..... Parest. ..... HA ..... Insom. ..... Irritab. .....
34. CARD.: Palp. .... Dysp. .... Edema .... Fainting ....
35. RESP.: Chest pain .... Cough .... Hemopt. .... Colds .... Allergy ....
36. GI: Abd. pain ... N or V ... Anorexia ... Jaund. ... Diar. ... Constip. ...
37. GU: Dysuria ...... Hematuria ...... Nocturia ...... Frequency ......
38. SKIN: Discolor. .... Inflam. .... Petechiae .... Lesion .... Itching ....
39. SPEC. SENSES: Vision .... Epistaxis .... Tinnitus ....
40. OTHER:* ....
....
....

History inaccurate .... Why? ....

H. *PHYSICAL EXAMINATION* (Encircle or enter positive findings and X out remainder)

41. APPEARANCE
Pallor Jaundice Cyanosis
Ht...... Wt...... Temp......

42. EYES
Dist. vis.:
Unassisted: R 20/ L 20/
Assisted: R 20/ L 20/
Type of assistance: own glasses pinhole
Near vision: R L

Pupils—Irregular R L
Unequal R L
Fail to react to light R L
Fail to react to acc. R L
Conjunctiva—Ulcerated R L
Congested R L
Jaundiced R L

Cornea—Cloudy R L
Ulcerated R L
Cataract R L
Exophthalmus
Nystagmus
Strabismus

43. EARS
Purulent discharge R L
Cerumen R L
Drums perforated R L
Mastoid tenderness R L

44. NOSE
Marked obstruction R L
Enlarged turbinates R L
Septum deviated to R L
Perforation of septum
Mucous membrane—
Congested
Ulcerated
Pale

---

* Make additional notes on back of form.

45. MOUTH

Dentures—Partial
Complete
Gums—Infected
Retracted
Metal line
Tongue—Deviation to R or L
Tremor
Lesions

---

46. THROAT

Tonsils—Enlarged beyond pillars
Small—submerged
Cryptic
Infected
Vasc. congestion of pillar edges
Pharynx—Red, lustreless
Infected
Congested
Discharge on phar. wall
Mucoid Purulent
Inspissated
Soft palate—Ulcerated
Perforated

---

47. THORAX

Chest—Asymmetric Flat
Barrel-shaped
Abnormal breath sounds
Abnormal resonance
Abnormal fremitus
Rales (Note type and location)

---

48. CARDIOVASCULAR

	Pulse	Resp. rate
Before exercise		
Immediately after ..		
Two min. after		

Apex beat—Palpable
Outside midclavicular line
Location by interspace
Heart sounds—Forceful Distant Reduplicated
Murmur—Systolic Diastolic
Presystolic
Thrills
Rhythm irregular: Extrasystole
Fibrillation

Blood pressure:

Peripheral vessels—Beaded
Sclerotic
Tortuous

---

49. ABDOMEN

Abdominal tenderness
Liver—enlarged
Other (specify)

---

50. REFLEXES

Biceps: Increased Decreased
Triceps: Increased Decreased
Patellar: Increased Decreased
Romberg

---

51. ADENOPATHY

Cervical
Maxillary
Epitrochlear
Axillary

---

52. SKIN

Oily Dry Pigmentation
Lesions (describe)

---

53. DESCRIBE ANY OTHER ABNORMALITY, DEFORMITY, OR LIMITATION OF FUNCTION:

Examined by ....

I. *POSITIVE FINDINGS:* ....

....

....

....

....

....

....

....

....

....

....

....

....

J. *X-RAY INTERPRETATION:*

Film condition— G F P

Lung field markings—Linear 1° 2°
GG 1° 2°
Nodular 1° 2°
Conglomerate

Emphysema—1 2 3

Calcification—Hilar Parenchymal

Heart or aorta enlarged— 1 2 3

Diaphragm—Adhesions Obliterated angles

Other: ....

....

K. *LABORATORY FINDINGS:*

Serodiagnostic test ....
(Specify name)

B. A. ......% Albuminuria ......

RBC .... Glycosuria ....

WBC .... Microscopic ....

Hb ....

CO Hb ..... Lead ..... mg./liter

....

....

....

....

....

NOTES

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Performing physical examination

As each patient reported to the physician, he was inspected for evidence of abnormalities, defects, or limitations of function. At the start of each physical examination the occupational history and history of previous illnesses were reviewed by the physician and the symptomatology or present illness, if any, was noted and recorded.

The physical examination performed followed closely well-established methods of medical practice. It began with the head, continuing with inspection of the eyes, ears, nose and throat, and teeth and gums, followed by examination of the neck, thorax, and abdomen. The extremities were checked for the reflexes, deformities, and loss or limitation of function. Special attention was given to the examination of the respiratory and cardiovascular system, and electrocardiographic records were taken of most patients with cardiac arrhythmias. Examination of the genitalia or anal region was omitted unless indicated by the history or by the patient's own complaints. Blood pressure determinations were of necessity casual rather than basal. In all cases the blood pressure was taken in the early stages of the examination, usually just after the case history had been elicited. No audiometric determinations were made because suitable space for this procedure was not available in the shipyards.

After stripping to the waist (all women were provided with paper capes) a 14 inch by 17 inch chest X-ray of each employee was taken with a mobile 30 milliampere machine. These roentgenograms were taken by the examining physician or nurse, except in one instance where the examinations were done in the shipyard hospital and the chest X-rays were taken by the hospital X-ray technician on the hospital machine. This hospital machine was not portable and was of 100 milliampere capacity.

Sampling of blood and urine

Blood specimens were obtained by venipuncture on each patient and the blood was divided into two parts, one for serology and the other, treated with an anticoagulant, for the remainder of the hematologic laboratory work. Also, at the time of the venipuncture a blood film was prepared on each patient. These blood films were fixed in methyl alcohol and stored for staining and study for basophilic stippling at the laboratories of the National Institute of Health.

The portion of the blood specimen treated with the anticoagulant, (potassium ammonium oxalate) was then used for the remaining hematologic tests, all of which were performed in the field laboratory. Sedimentation rates were determined by the Wintrobe method (*55*) and records were kept of the actual sedimentation rate readings and the corrected values. Hematocrit determinations were made on all blood specimens by the Wintrobe method. Light transmissions were measured with a simplified photoelectric colorimeter (*56*). Colorimetric determinations were made of laked blood, then of laked blood treated with KCN, and finally of the same specimen, after treatment with 0.2N HCl. The acid hematin was allowed to stand for 1 hour before making the last determination. Urine specimens were obtained on all male employees in each yard, and on females in those yards where toilet facilities were easily accessible to the quarters assigned. Urinalyses were done for qualitative sugar and albumin by the use of Benedict's qualitative solution and the heat-acetic acid method. Microscopic examinations of centrifuged urine sediment were done only when the specimen showed the presence of albumin.

ENVIRONMENTAL[1]

Gas and fume sampling

The fume samples of the environmental survey were taken with a d. c. electrostatic precipitator. This instrument had been fitted with a medium size induction coil and was thereby capable of operating at 16,000 volts. Flexible electrical and air hose connections were also made between the electrode head and the instrument; this arrangement facilitated sampling in confined spaces such as inner bottoms on the hull. Efficiency tests were made in the laboratory with this instrument before the survey started. Since fresh metallic lead fume is one of the most difficult inorganic substances to sample in air, this was mixed with air in a chamber to which was attached the d. c. precipitator, followed by an a. c. precipitator operating at 25,000 volts and previously shown to be 100 percent efficient against fresh lead fume (*57*). A series of runs was made, the voltage of the d. c. instrument being varied from 12,730 to 16,050 volts. At 12,730 volts the d. c. precipitator showed an efficiency of 98.2 percent in the collection of 311 mg. of fresh lead fume in air. At voltages of 13,680 and above, it was found to be 100 percent efficient.

In order to evaluate the welder's exposure, all operational samples were taken at the breathing level with the collecting electrode of the precipitator in such position over the welder's shoulder and beside his helmet that a representative collection of fume might be possible. General air samples were also taken.

Gas samples for nitrogen oxides were taken in identical locations with the welding fume samples. Gas-sampling bottles of 250 ml. capacity, double-cock, were used. These bottles had been previously calibrated and numbered. All bottles were clean, dry and evacuated prior to sampling. In the field, a filter paper cap was placed on the intake end of the bottle in order to filter out particulate welding fume. This removed interfering iron from the chemical analysis. The samples were collected by means of 20 squeezes of a hand aspirator bulb.

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[1] Methods of chemical analysis are discussed under section, Chemical Investigation of Welding Fume, p. 41.

STATISTICAL

Sampling methods for worker selection

Sampling procedures were developed on the assumption that a current list including all workers was available for each shipyard. The preparation of these lists was facilitated by the fact that in all shipyards the requisite information was on punched cards. The following steps were necessary to place the cards in proper order for taking the sample. First, all cards were sorted according to occupational code number. Second, cards relating to all welding occupations were placed in one group and cards for occupations previously selected as controls (similar to the welding occupations in wage scales, training required, and physical exertion but with no exposure to welding fume) were placed in another group. Third, cards in the welding and the control groups were each sorted into piles containing white males, colored males and white females, making six separate classifications. Colored females were eliminated entirely because so few of them were employed in the occupations studied. Fourth, all cards in each of the six groups were run through the printing tabulator. Information listed for each worker included name, badge number, department, occupation, shift, hourly rate of pay, age and length of employment, wherever possible. Fifth, from these six lists representing all persons in the selected occupations the sample was taken.

It was decided to examine approximately 5,000 employees during this survey. The shipyards chosen for study were divided into four groups according to the total number of workers employed. Within each group the same number of persons was to be selected for medical examination. It ranged from 500 in the smallest group to 875 in the largest. Once the size of the total sample for a particular shipyard was known, the number by occupation was determined on the basis of 75 percent welders and 25 percent controls. The sex division for each yard was 60 percent males and 40 percent females. Male welders and controls were further divided into white and colored by applying the percentage of these groups found in the total male population of the shipyard.

This procedure established the number to be drawn from each of the six sex-color groups in the final sample, but before the lists of names could be given to the medical examiners these numbers were inflated to take care of persons who for one reason or another would fail to report when called. This excess varied from yard to yard, but was kept as low as possible.

Actual sampling consisted of marking every *n*th name on a particular list so that the desired total number would be spaced evenly over the entire group. For example, if 125 white male welders were needed from a list containing the names of 375 white male welders every third name would be checked. This method was found to give a representative sample for shift, age, and length of service.

Names which had been checked were copied on separate lists arranged according to sex and shift worked. Individual names were drawn from these lists for the medical examination in the order which best suited local conditions. Should all names be exhausted before the quota of examinations was met the sampling procedure was repeated so that the new names would be distributed over the entire list.

CHEMICAL INVESTIGATION OF WELDING FUME

PARTICULATE CONSTITUENTS

Nature and scope

The purpose of the chemical investigation was to evaluate the nature and the amount of the fume produced in electric arc welding in both confined and open spaces in the shipbuilding industry. To this end the sampling of the atmospheric contaminants to which the welders were exposed was carried out in eight shipyards. The samples were shipped to the Industrial Hygiene Research Laboratory, National Institute of Health, for the purpose of determining the total fume, in addition to the iron, zinc, and lead content of these samples and such other constituents that were thought to be significant from the health viewpoint. Total fume and iron determinations were made on all submitted samples; zinc or lead analyses were carried out on only those samples taken at a potential exposure to either of these metals, *viz.* where welding on galvanized or lead painted surfaces was encountered. Actually on new ship construction very little welding was found to take place on lead painted surfaces; this occurred only in those instances where a re-weld was necessary and the surface had been painted with red lead in the interim.

Six shipyards operated by the United States Maritime Commission and two shipyards operated by the United States Navy, were included in this survey. Of the 1,900 samples taken, 1,765 were analyzed for their iron and total fume content. The remainder consisted of too insignificant a quantity of fume either to submit to laboratory examination or to report after that examination was made. Of the samples submitted 278 were analyzed for zinc and 25 for lead, using the spectrographic method for both.

Composition of welding electrodes

At the eight shipyards surveyed for atmospheric contaminants produced by welding operations, mild steel electrodes were generally used. Spectrographic analyses of these electrodes and of their respective coatings revealed the nature and the relative amounts, from this source, of the constituents to be expected in the fume samples taken at those operations which involve welding on bare steel. The electrodes themselves were found to contain mostly iron with only traces of those metals which were present to a considerable extent in the coatings. The spectrographic semiquantitative analytical data of the electrode coatings are given in table 1.

TABLE 1.—*The composition of welding electrode coatings*[1]

Constituents	[American Welding Society type number			Constituents	American Welding Society type number		
	E6010	E6012	E6020		E6010	E6012	E6020
Iron	3	3	3	Aluminum	1	2	3
Silicon	3	3	3	Copper	0	0	0
Manganese	3	3	3	Zinc	0	0	0
Magnesium	3	3	3	Lead	0	0	0
Calcium	2	2–3	3	Tin	0	0	0
Titanium	2	2	0–2				

[1] Key: 0—Trace; 1—Small amount; 2—Moderate amount; 3—Large amount.

As shown in table 1 the principal metallic constituents of the coatings were iron, silicon, manganese, magnesium, calcium, titanium, and aluminum. Therefore, the presence of a significant quantity of zinc or lead in the fume produced by welding could be anticipated only in the welding of galvanized or lead-painted surfaces.

The extent to which each of the metallic constituents of the electrode coatings contributed to the total fume produced in a welding operation was relatively slight. This fact was amply demonstrated during the course of the chemical phase of this survey. An over-all average of the 1,765 fume samples showed that 50 percent of the total fume (corrected in those cases where lead or zinc was present) consisted of ferric oxide, or 35 percent in terms of metallic iron. The remaining 50 percent of the total fume consisted approximately as follows: about 15 percent as titanium dioxide, 8 percent as silica and 24 percent as a mixture of acid-soluble metals, such as magnesium, calcium, aluminum, manganese, chromium, copper, and sodium. Each of these was present in only small quantity so that no single one contributed greatly to the total fume generated. The semiquantitative data regarding these metals were useful in making an approach to the analytical problems as they indicated what interferences would be encountered in following certain established chemical procedures.

Methods of analysis

Total fume and iron determinations were made on all samples examined. Zinc or lead analyses were carried out only on those samples taken at welding operations on galvanized or on lead-painted surfaces. The additional analyses for the other constituents mentioned above were obtained from a few fume samples which were unusually heavy and which thereby provided sufficient material for additional analysis.

Determination of total fume.—About 75 percent of the welding fume samples were received from the field in either the aluminum collecting electrodes of the electrostatic precipitator (*58*) or in small vials, the samples having been transferred to the latter in the dry state. The remaining 25 percent of the samples were received in either 5 percent nitric acid or aqueous suspension.

The total fume determination of those samples received in the precipitator electrodes was made by the direct weighing of the electrode before and after removing the fume deposit by means of distilled water and a "policeman." Before each weighing the outer surface of the electrode was cleaned with alcohol and air-dried. The total fume content of the sample was then obtained from the difference in the two weighings.

The total fume content of those samples received in the vials was determined similarly except that the vials were dried at 105° C. and cooled in the desiccator for 1 hour before each weighing. Furthermore, any fume adhering to the walls of the vials was removed with hydrochloric acid.

The fume samples which had been shipped in either nitric acid or aqueous suspension were transferred to 250 ml. Phillips beakers, evaporated to dryness, dried at 105° C., cooled in the desiccator for 1 hour and weighed. Upon transferring the fume deposit with hydrochloric acid the dried beakers were reweighed and the total fume obtained by difference.

Determination of iron.—It was necessary to devise a special analytical procedure for the determination of iron in the welding fume samples (*59*). The development of this method was undertaken when several of the common procedures, in a preliminary study, were found to be inaccurate for the determination of iron in the range of 0.25 to 10.0 mg., the quantity usually present in the 25 percent aliquot portions of most of the samples. The reason for taking only 25 percent portions of the samples for the iron procedure was to ensure ample material for the zinc and lead determinations, which were to be carried out subsequently on certain specified samples.

It may now be mentioned that the spectrophotometric thiocyanate method for iron was applied very carefully with regard to the hydrogen ion concentration and with readings taken at 480 mμ. Nevertheless, total iron values, which were two or three hundred percent higher than the true values, were obtained regardless of the size of the aliquot portion of the original sample. This method was consistent within itself and gave comparable total iron results with different aliquot portions of a given sample; however, these results in this particular range of iron were inaccurate and surprisingly high when compared to the actual amount of iron present as determined by other chemical procedures.

Consequently a modified permanganate procedure was developed and tested rigorously as described elsewhere (*59*). This method gave iron values which at all times remained completely consistent with the total fume content and which, in the case of a few unusually heavy samples, agreed favorably with the gravimetric method used as a check against it.

The procedure in detail is as follows: Twenty ml. of concentrated hydrochloric acid were added to the suspension of the fume sample and solution was obtained by heating. The solution was then made up to volume in a 100 ml. volumetric flask. For the iron determination, a suitable aliquot portion of the solution, usually 25 percent, was transferred to a 250 ml. Phillips beaker and evaporated almost to dryness. The sample was then dissolved in 0.5 ml. of 6N hydrochloric acid and 10 ml. of water, accompanied by heating. The solution was diluted to approximately 25 ml. and the iron present reduced to the ferrous state. This reduction was accomplished by adding 20 ml. of a saturated solution of sulfurous acid, mixing, and heating for 1 to 3 minutes at 85–90° C. on an electric hotplate. The complete loss of color of the solution served as an indication of complete reduction. After the sample had cooled for 2 or 3 minutes, 5 ml. of 18N sulfuric acid were added slowly down the walls of the beaker. After thorough mixing, the hydrochloric and excess sulfurous acids were removed by heating at 70–75° C. for 10 minutes followed by evaporation (without boiling) to the first appearance of sulfur trioxide fumes. After the removal of the hydrochloric and excess sulfurous acids, the sample was cooled for one-half minute, diluted to about 40 ml. with hot, freshly-boiled distilled water, cooled to 60° C. and titrated with 0.01N potassium permanganate, meanwhile maintaining the temperature of the sample between 55 and 60° C. by carrying out the titration over a small electric hot-plate.

Determination of lead and zinc[1].—In general the method used for the spectrographic analysis of the fume samples for lead and zinc is the one developed by Armstrong and Brackett (*60*). The instrument used was a Bausch and Lomb large Littrow spectrograph with quartz optics in the region of 2800 A.–3300 A. All determinations were done in triplicate. A d. c. arc with a current of 24 amperes was used for excitation. The best excitation conditions were obtained with graphite electrodes using a pointed cathode and an anode drilled 3/8-inch deep with a 1/8-inch drill. No zinc was found as an impurity in the graphite, consequently no burning before loading the sample into the graphite was necessary. However, preburning for a period of 40 seconds as anode in a 24 ampere arc was required to remove lead impurities from the graphite. Each anode was loaded with 0.2 ml. of the dissolved fume sample and dried 45 minutes at 100° C. For the exposure an arc gap of 3 mm. was found to be best and the cathode region of this arc was photographed for 20 seconds when complete burnout of the elements to be determined was obtained.

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[1] The quantitative spectrographic analysis of the fume samples for lead and zinc and the qualitative analysis of the electrodes and electrode coatings were carried out by junior chemist Esther D. Redding, Industrial Hygiene Research Laboratory, National Institute of Health, U. S. Public Health Service, Bethesda, Md.

Due to the fact that a great deal of iron was present in all of these fume samples unusual care was necessary in the selection of internal standards. Iron does not interfere with the lead line at 2833 A. and the thallium line at 2824 A. was used for the internal standard. These conditions give maximum sensitivity for the lead determination. It was found that the concentration range of 0.05–5 mg. per l. of lead could be determined to better than 10 percent. Above 5 mg. per l. reversal took place making any determination inaccurate, and below 0.05 mg. per l. the lead lines did not give sufficient photographic density.

In the case of zinc a great deal of sensitivity had to be sacrificed in order to get a line which was not interfered with by iron. The moderately intense line at 3282 A. is suitable, and the 3242 A. line of palladium was used as the internal standard. Concentrations of 5–500 mg. per l. could be determined with less than 10 percent error. Since most of the samples contained large amounts of zinc this sensitivity was quite adequate. In cases where small amounts of zinc were present the sample was concentrated to one-tenth its original volume.

The photographs were taken on Eastman Type III–0 spectrographic plates and processed using Eastman D–61–A developer for 7 minutes at 65° F. and were fixed in Eastman F5 fixer. The densities of the appropriate lines were read on a Leeds and Northrop recording microphotometer and the concentration of the elements in the samples calculated using the method described by Armstrong and Brackett (*60*).

Determination of welding electrode constituents.—Short pieces of welding electrodes which had been completely cleaned of coating were burned as anode in a 24 ampere d. c. arc and photographed at three positions on the spectrum: 2300–2900 A., 2700–3300 A. and 3200–5000 A., using the Bausch and Lomb large Littrow spectrograph. Ground samples of the coatings of each rod were burned in when compared to the actual amount of iron present as determined by other chemical procedures.

Consequently a modified permanganate procedure was developed and tested rigorously as described elsewhere (*59*). This method gave iron values which at all times remained completely consistent with the total fume content and which, in the case of a few unusually heavy samples, agreed favorably with the gravimetric method used as a check against it.

The procedure in detail is as follows: Twenty ml. of concentrated hydrochloric acid were added to the suspension of the fume sample and solution was obtained by heating. The solution was then made up to volume in a 100 ml. volumetric flask. For the iron determination, a suitable aliquot portion of the solution, usually 25 percent, was transferred to a 250 ml. Phillips beaker and evaporated almost to dryness. The sample was then dissolved in 0.5 ml. of 6N hydrochloric acid and 10 ml. of water, accompanied by heating. The solution was diluted to approximately 25 ml. and the iron present reduced to the ferrous state. This reduction was accomplished by adding 20 ml. of a saturated solution of sulfurous acid, mixing, and heating for 1 to 3 minutes at 85–90° C. on an electric hotplate. The complete loss of color of the solution served as an indication of complete reduction. After the sample had cooled for 2 or 3 minutes, 5 ml. of 18N sulfuric acid were added slowly down the walls of the beaker. After thorough mixing, the hydrochloric and excess sulfurous acids were removed by heating at 70–75° C. for 10 minutes followed by evaporation (without boiling) to the first appearance of sulfur trioxide fumes. After the removal of the hydrochloric and excess sulfurous acids, the sample was cooled for one-half minute, diluted to about 40 ml. with hot, freshly-boiled distilled water, cooled to 60° C. and titrated with 0.01N potassium permanganate, meanwhile maintaining the temperature of the sample between 55 and 60° C. by carrying out the titration over a small electric hot-plate.

Determination of lead and zinc[1].—In general the method used for the spectrographic analysis of the fume samples for lead and zinc is the one developed by Armstrong and Brackett (*60*). The instrument used was a Bausch and Lomb large Littrow spectrograph with quartz optics in the region of 2800 A.–3300 A. All determinations were done in triplicate. A d. c. arc with a current of 24 amperes was used for excitation. The best excitation conditions were obtained with graphite electrodes using a pointed cathode and an anode drilled 3/8-inch deep with a 1/8-inch drill. No zinc was found as an impurity in the graphite, consequently no burning before loading the sample into the graphite was necessary. However, preburning for a period of 40 seconds as anode in a 24 ampere arc was required to remove lead impurities from the graphite. Each anode was loaded with 0.2 ml. of the dissolved fume sample and dried 45 minutes at 100° C. For the exposure an arc gap of 3 mm. was found to be best and the cathode region of this arc was photographed for 20 seconds when complete burnout of the elements to be determined was obtained.

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[1] The quantitative spectrographic analysis of the fume samples for lead and zinc and the qualitative analysis of the electrodes and electrode coatings were carried out by junior chemist Esther D. Redding, Industrial Hygiene Research Laboratory, National Institute of Health, U. S. Public Health Service, Bethesda, Md.

Due to the fact that a great deal of iron was present in all of these fume samples unusual care was necessary in the selection of internal standards. Iron does not interfere with the lead line at 2833 A. and the thallium line at 2824 A. was used for the internal standard. These conditions give maximum sensitivity for the lead determination. It was found that the concentration range of 0.05–5 mg. per l. of lead could be determined to better than 10 percent. Above 5 mg. per l. reversal took place making any determination inaccurate, and below 0.05 mg. per l. the lead lines did not give sufficient photographic density.

In the case of zinc a great deal of sensitivity had to be sacrificed in order to get a line which was not interfered with by iron. The moderately intense line at 3282 A. is suitable, and the 3242 A. line of palladium was used as the internal standard. Concentrations of 5–500 mg. per l. could be determined with less than 10 percent error. Since most of the samples contained large amounts of zinc this sensitivity was quite adequate. In cases where small amounts of zinc were present the sample was concentrated to one-tenth its original volume.

The photographs were taken on Eastman Type III–0 spectrographic plates and processed using Eastman D–61–A developer for 7 minutes at 65° F. and were fixed in Eastman F5 fixer. The densities of the appropriate lines were read on a Leeds and Northrop recording microphotometer and the concentration of the elements in the samples calculated using the method described by Armstrong and Brackett (*60*).

Determination of welding electrode constituents.—Short pieces of welding electrodes which had been completely cleaned of coating were burned as anode in a 24 ampere d. c. arc and photographed at three positions on the spectrum: 2300–2900 A., 2700–3300 A. and 3200–5000 A., using the Bausch and Lomb large Littrow spectrograph. Ground samples of the coatings of each rod were burned in cupped graphite electrodes and photographed in the usual way. The processed plates were compared to standards and the various constituents determined.

Chemical results

For the purpose of classification the welding locations were arranged by the engineering survey into 3 major and 10 minor groups, according to the degree of confinement of the specific locations. The minor locations, in descending order of confinement in each major group, along with the total number of representative samples analyzed from the eight shipyards, are given in table 2.

TABLE 2.—*The total number of analyzed welding fume samples from each welding location for eight shipyards*

Location		Number of samples analyzed		
Major	Minor	Iron	Zinc	Total fume
Total		1,767	278	1,765
Hull	Inner bottoms	170	0	168
	Fore- and after-peaks, small tanks	171	22	170
	Cargo holds, superstructure, other large spaces	659	82	649
	Top deck, outside shell	77	34	79
Subassembly	Inner bottoms	43	0	43
	Fore- and after-peaks	98	18	99
	Superstructure	54	0	54
	Flat sheets	177	41	177
Shops	Fabrication (all types)	244	40	243
	Pipe	83	41	83

Sampling in the shipyards was conducted in accordance with the relative welding population of each location; the largest number of samples were taken at those locations utilizing the greatest number of welders. This explains the wide variation in the sample distribution observed in table 2. Thus, over one-third of all the samples were collected at welding operations on the cargo holds and superstructure on the hull. This may quite properly be interpreted as direct evidence that, in the over-all welding population employed at the eight shipyards investigated, about one-third of the welders were engaged at a given time at this welding location.

The average concentrations of metallic iron, ferric oxide, metallic zinc, zinc oxide, and total fume in each welding location of all shipyards were considered to be of significance since sufficient analytical data were available from the summation of the eight shipyards to give reliable values of fume concentrations to which the welders were exposed. These average concentrations, expressed in terms of milligrams per cubic meter are given in table 3.

TABLE 3.—*The average concentration of iron, ferric oxide, zinc, zinc oxide, and total fume in each welding location for eight shipyards*

Location		Average concentration in mg. per m^3 of air[1]				
Major	Minor	Iron	Iron oxide	Zinc	Zinc oxide	Total fume
Hull	Inner bottoms	32.01	45.77	0	0	87.51
	Fore- and after-peaks, and small tanks	15.01	21.46	9.24	11.50	49.24
	Cargo holds, superstructure, other large spaces	15.50	22.17	13.44	16.73	50.06
	Top deck, outside shell	15.40	22.02	26.67	33.20	59.14
Subassembly	Inner bottoms	20.80	29.74	0	0	71.51
	Fore- and after-peaks	16.93	24.21	16.48	20.51	52.75
	Superstructure	15.16	21.68	0	0	38.08
	Flat sheets	9.04	12.93	19.70	24.52	32.64
Shops	Fabrication	9.85	14.09	6.03	7.51	31.10
	Pipe	8.25	11.80	13.20	16.43	53.41

It will be observed in this table that the most confined welding location, i.e. inner bottoms on the hull, shows the highest average concentration of iron and total fume. The iron oxide value of 45.77 mg. per cubic meter is 50 percent greater than the proposed limit of 30 mg. per cubic m. suggested in 1941 by Tebbens and Drinker (*14*). The average iron oxide concentrations of all the other locations are below this limiting value but, as it will be shown subsequently in the distribution data, a significant proportion of the samples has excessive fume concentrations.

It is rather interesting that the remaining three hull locations show about the same concentration of iron and total fume with respect to one another and that these values are approximately one-half those shown for inner bottoms on the hull. The subassembly welding fume exposures, with the exception of flat sheet, are in the same range as those of the last three hull locations.

The subassembly flat sheets and the shop iron fume exposures are the lowest of all the groups and are in remarkably close agreement.

Whereas the average iron oxide concentrations, with the exception of that of the first location, fall below the proposed limit for this fume, a different situation may be noted in the zinc oxide averages. Five of the seven locations represented show zinc oxide values which exceed the maximum allowable concentration of 15 mg. per cubic m. In fact, the top deck exposure is more than twice the maximum allowable concentration.

In order to obtain a more complete picture of the extent of the welding fume exposures, percentage distribution tables were constructed. A yard by yard break-down of the percentages of iron and total fume in a series of concentration ranges, expressed in terms of milligrams per cubic meter, is given in table 4.

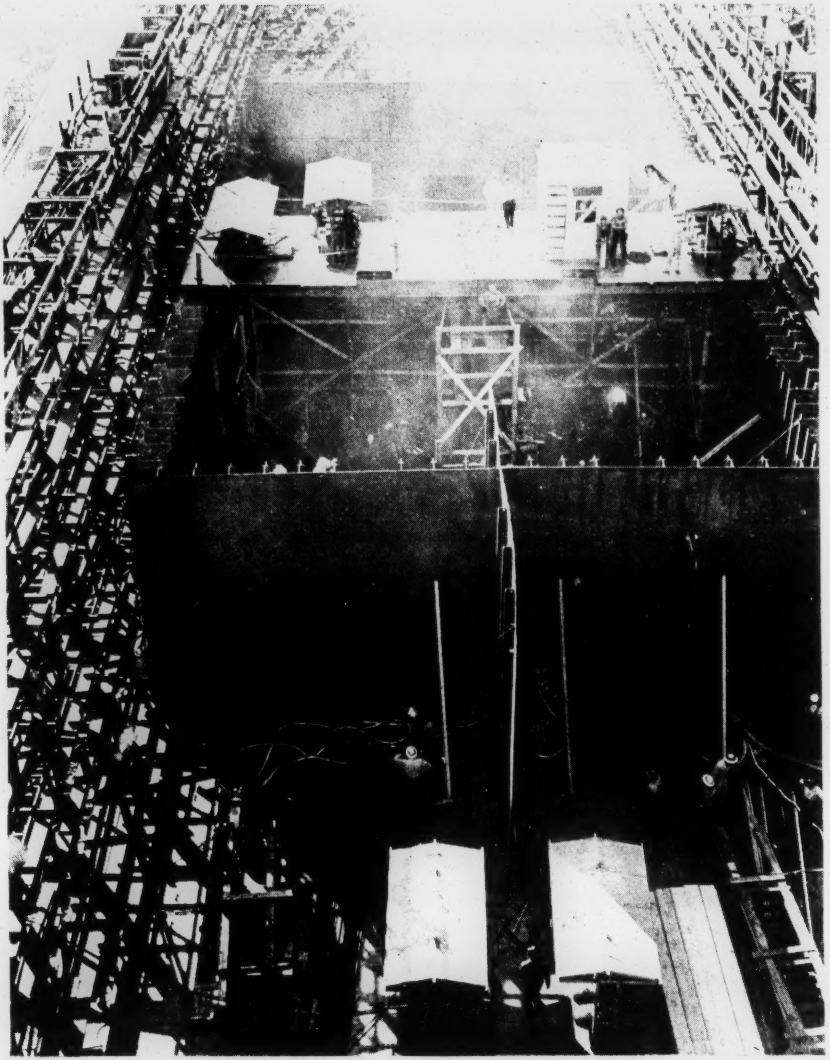


FIGURE 9. Construction on the hull of a Liberty ship (U. S. Maritime Commission photo).

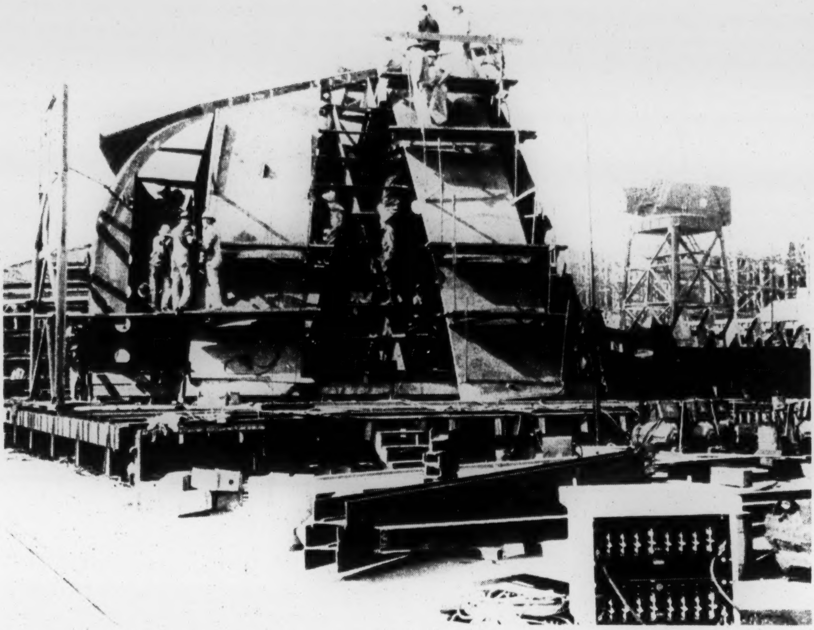


FIGURE 10.—Construction of bow sections on the subassembly platform (U. S. Maritime Commission photo).

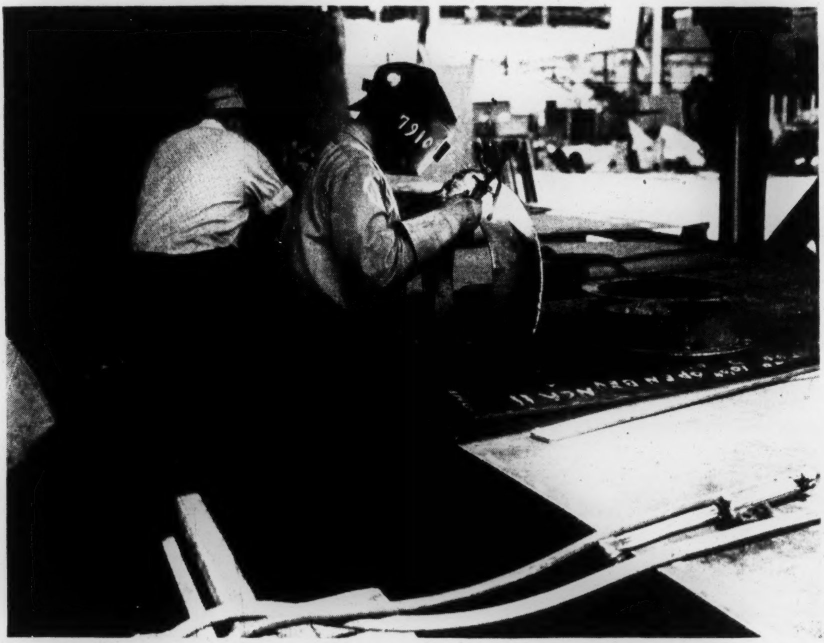


FIGURE 11.—Welding in the fabrication shop (U. S. Maritime Commission photo).

TABLE 4.—*The percentage distribution of total fume and of iron (mg. per cubic m.) in the major welding locations by shipyard*

Concentration range (mg. per m³)	Welding location					
	Hull		Subassembly		Shop	
	Total fume	Iron	Total fume	Iron	Total fume	Iron
	YARD A					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	1.1	20.0	0	12.5	----------	----------
10–20	7.8	36.7	12.5	37.5	----------	----------
20–30	11.1	12.2	0	25.0	----------	----------
30–60	27.8	24.4	62.5	25.0	----------	----------
60–100	25.6	5.6	25.0	0	----------	----------
100–200	22.2	1.1	0	0	----------	----------
200 or over	4.4	0	0	0	----------	----------
	YARD B					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	2.4	31.1	3.2	39.3	0	68.8
10–20	7.8	36.5	4.8	32.8	6.2	18.8
20–30	10.8	18.0	9.7	11.5	12.5	0
30–60	38.3	8.4	50.0	9.8	31.3	6.2
60–100	19.1	4.2	14.5	3.3	25.0	6.2
100–200	15.0	1.8	11.3	3.3	12.5	0
200 or over	6.6	0	6.5	0	12.5	0
	YARD C					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	3.9	71.8	2.0	53.1	20.7	86.2
10–20	25.0	15.1	14.3	26.5	37.9	13.8
20–30	26.9	5.6	4.1	20.4	17.2	0
30–60	19.2	5.6	38.8	0	10.4	0
60–100	15.4	1.9	22.4	0	10.4	0
100–200	7.7	0	18.4	0	3.4	0
200 or over	1.9	0	0	0	0	0
	YARD D					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	9.0	52.7	21.4	60.7	11.6	58.1
10–20	18.0	23.2	25.0	21.4	18.6	34.9
20–30	17.1	12.5	19.6	7.2	9.3	0
30–60	27.9	9.8	17.9	8.9	32.6	4.7
60–100	16.2	1.8	5.4	1.8	14.0	2.3
100–200	9.0	0	10.7	0	4.6	0
200 or over	2.8	0	0	0	9.3	0
	YARD E					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	10.3	57.3	30.6	69.4	25.0	75.0
10–20	29.6	18.8	27.0	21.2	41.6	8.3
20–30	20.6	11.8	15.3	4.7	8.3	8.3
30–60	19.3	10.3	18.8	4.7	12.5	4.2
60–100	11.3	.9	7.1	0	4.2	0
100–200	7.0	.9	1.2	0	4.2	4.2
200 or over	1.9	0	0	0	4.2	0

TABLE 4.—*The percentage distribution of total fume and of iron (mg. per cubic m.) in the major welding locations by shipyard*

Concentration range (mg. per m³)	Welding location					
	Hull		Subassembly		Shop	
	Total fume	Iron	Total fume	Iron	Total fume	Iron
	YARD F					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	15.4	48.7	33.3	73.4	35.0	81.7
10–20	17.5	33.3	26.7	16.7	31.7	10.0
20–30	14.1	8.0	16.7	3.3	20.0	8.3
30–60	34.9	6.7	20.0	3.3	8.3	0
60–100	10.7	2.6	0	3.3	3.3	0
100–200	4.7	0.6	3.3	0	1.7	0
200 or over	2.7	0	0	0	0	0
	YARD G					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	11.3	74.6	31.8	50.0	23.2	82.9
10–20	25.8	20.0	4.6	22.7	29.0	11.4
20–30	20.6	2.1	9.1	18.2	15.9	1.4
30–60	23.7	1.1	27.3	9.1	24.6	2.9
60–100	10.3	1.1	13.6	0	2.9	1.4
100–200	6.2	1.1	13.6	0	2.9	0
200 or over	2.1	0	0	0	1.5	0
	YARD H					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1–10	11.2	42.0	11.1	61.9	24.7	55.3
10–20	17.1	23.9	33.3	15.9	24.7	25.9
20–30	18.2	10.6	15.9	7.9	14.1	10.6
30–60	23.5	14.4	20.6	6.3	23.5	7.0
60–100	10.7	4.8	9.5	3.2	8.3	1.2
100–200	13.4	3.2	4.8	1.6	4.7	0
200 or over	5.9	1.1	4.8	3.2	0	0

Since all minor locations were not represented in the samples collected in each yard it was considered preferable to use the major locations only for the complete distribution shown in this table. Furthermore, an inspection of the variation, from one yard to another, of the individual percentages of a given range of concentration for the major locations will illustrate this point. Moreover, since the welding fume exposure of the shipyard industry as a whole is the primary objective, the data could be utilized to far greater advantage by summarizing them for all yards. The summarized data of the iron fume distribution are given in table 5 and figure 12 and of the total fume distribution in table 6 and figure 13.

It will be noted that a more representative percentage distribution of iron and of total fume has thus been shown in tables 5 and 6, re-

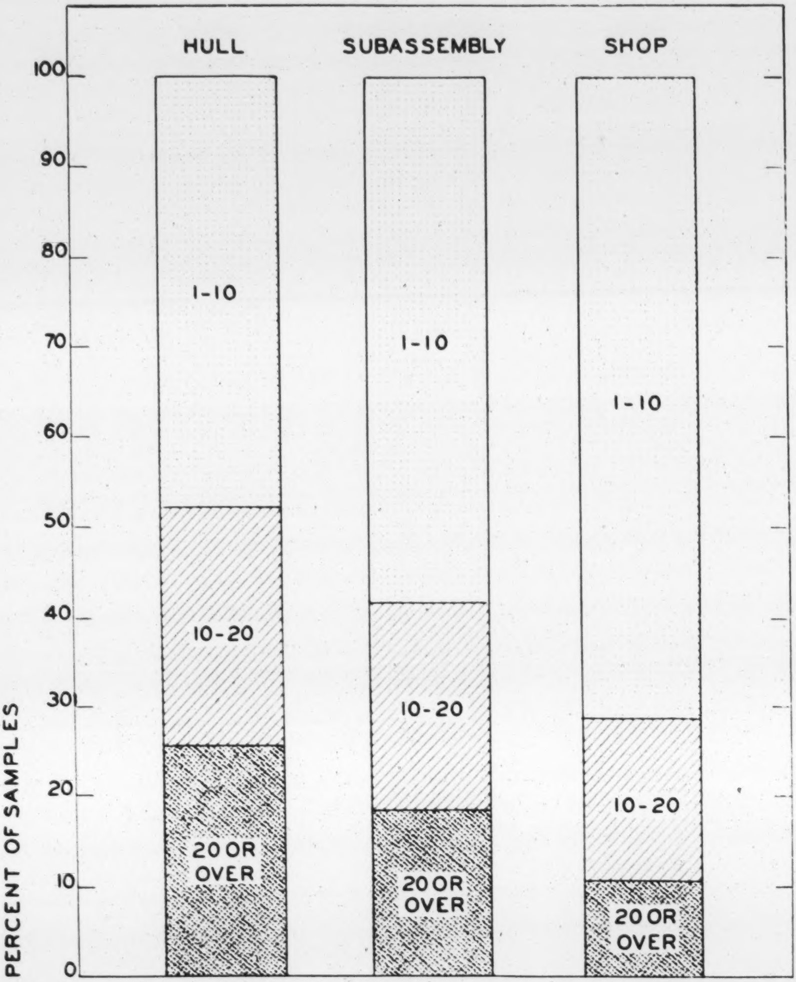


FIGURE 12. Percentage distribution of iron concentrations (milligrams of iron per cubic meter) for eight shipyards.

TABLE 5.—*Distribution of iron concentrations (mg. of iron per cubic m.) in the major welding locations for eight shipyards*

Concentration range (mg. Fe per m³)	Samples by welding location					
	Hull		Subassembly		Shop	
	Number	Percent	Number	Percent	Number	Percent
Total	1,068	100.0	374	100.0	328	100.0
1-10	512	47.9	216	57.7	233	71.0
10-20	282	26.4	86	23.0	60	18.3
20-30	117	11.0	37	9.9	18	5.5
30-60	110	10.3	24	6.4	12	3.7
60-100	31	2.9	6	1.6	4	1.2
100-200	14	1.3	3	.8	1	.3
200 or over	2	.2	2	.6	0	0

TABLE 6.—*Distribution of total fume concentrations (mg. of total fume per cubic m.) in major welding locations for eight shipyards*

Concentration range (mg. total fume per m³)	Samples by welding location					
	Hull		Subassembly		Shop	
	Number	Percent	Number	Percent	Number	Percent
Total	1,066	100.0	373	100.0	326	100.0
1-10	94	8.8	65	17.4	75	23.0
10-25	299	28.1	102	27.4	117	35.9
25-60	370	34.7	131	35.1	88	27.0
60-100	151	14.2	40	10.7	25	7.7
100-200	112	10.5	30	8.1	13	4.0
200 or over	40	3.7	5	1.3	8	2.4

spectively. Moreover, as these values are derived from the analysis of such a large number of samples they should serve as a fairly reliable index as to the actual welding environment in any shipbuilding industry.

A difference in the concentration range increments will be observed in these two tables with respect to each other. This difference lies only in those ranges between 10 and 60 mg. per cubic m.; it was necessary to make the change in setting up the total fume distribution data because of the relatively small number of samples whose total fume values fell within a specific 10 mg. per cubic m. range.

In figure 12 the percentage distribution values of iron are plotted in such a manner as to draw attention immediately to the excessive concentrations of iron (illustrated by the black areas). These areas represent concentrations greater than 20 mg. of metallic iron per cubic m., which is approximately equivalent to 30 mg. of ferric oxide per cubic m. Iron fume exceeding this value was found in 25 percent

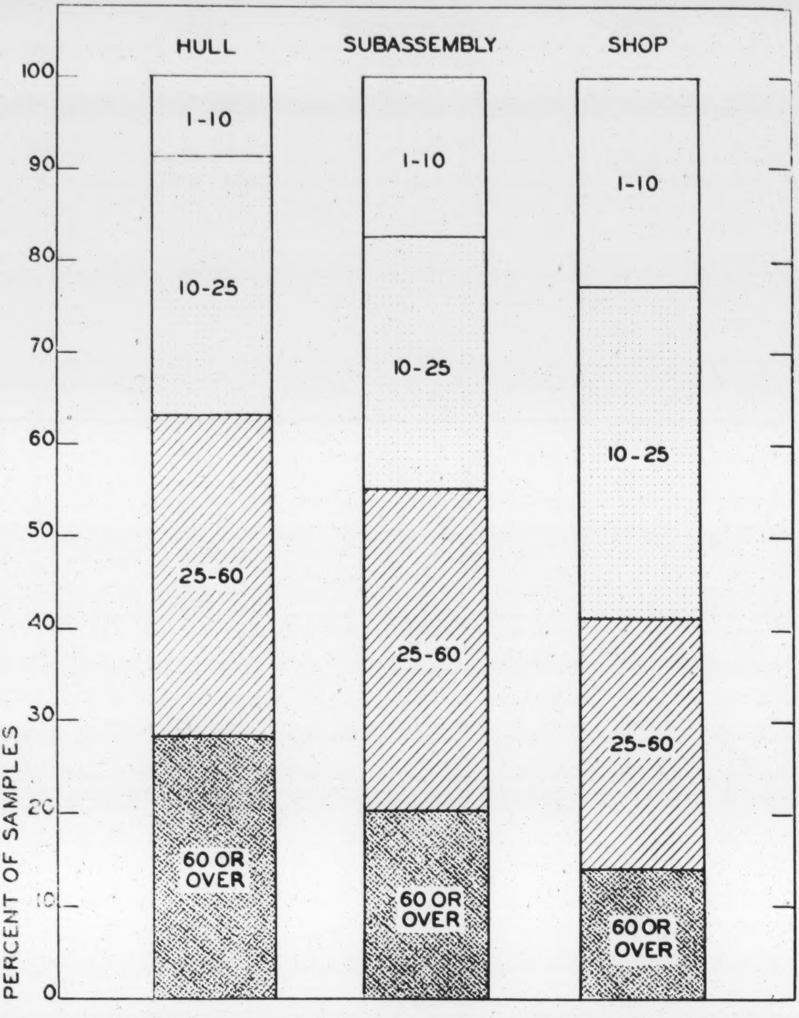


FIGURE 13. Percentage distribution of total fume concentrations (milligrams of total fume per cubic meter) for eight shipyards.

of samples taken on the hulls, 19 percent of samples taken in subassemblies and in about 11 percent of samples taken in the shops.

In figure 13 the black areas indicate total fume concentrations in excess of 60 mg. per cubic m. The reason for the selection of this value was to place the iron and total fume distribution plots on an equal basis. It was mentioned previously that about 50 percent of the total fume consisted of ferric oxide. The 20 mg. per cubic m. value of metallic iron used as the criterion in figure 12 is, as mentioned above, approximately equivalent to 30 mg. per cubic m. of ferric oxide. Therefore, if a fume sample showed a total fume concentration of 60 mg. per cubic m., the concentration of iron should be 20 mg. per cubic m. as metallic iron or 30 as ferric oxide. A comparison of the percentages of iron and total fume exceeding these limiting values shows very good agreement and justification for this assumption.

A more detailed distribution of iron was prepared in which all the minor locations are represented by the samples containing more than 20 mg. per cubic m. As in the previous tables and figures, the summarized data for all yards are utilized. These excessive concentrations of metallic iron are given in table 7 and figure 14.

TABLE 7.—*Welding location of excessive iron fume concentrations for eight shipyards. Percentage of samples showing an iron content greater than 20 mg. of iron per cubic m.*

Location		Total number of samples	Samples containing more than 20 mg. Fe per m^3	
Major	Minor		Number	Percent of total samples
Hull	Inner bottoms	170	74	43.5
	Fore- and after-peaks, small tanks	171	37	21.6
	Cargo holds, superstructure and other large spaces	650	146	22.5
	Top deck and outside shell	77	17	22.1
Subassembly	Inner bottoms	43	12	27.9
	Fore- and after-peaks	100	30	30.0
	Superstructure	54	7	13.0
	Open, flat sheets	177	23	13.0
Shop	Fabrication	244	29	11.9
	Pipe	83	5	6.0

As shown in this table and graph, 43.5 percent of the fume samples taken at welding operations on the inner bottoms on the hull contain excessive iron concentrations, whereas the other three hull locations are remarkably close together with about one-half this percentage. The inner bottoms and fore- and after-peaks of subassembly welding are also somewhat high with respect to fume of this nature. The remaining locations show a considerably lower proportion of excessive iron fume concentration.

The significance of high concentrations of zinc oxide fume in welding operations is difficult to evaluate. It should be pointed out, however, that from 16 to 51 percent of all fume samples taken during the welding of zinc coated steel showed a zinc concentration in excess of the maximum allowable concentration of 12 mg. per cubic m. (15 mg. per cubic m. as zinc oxide). The zinc distribution data

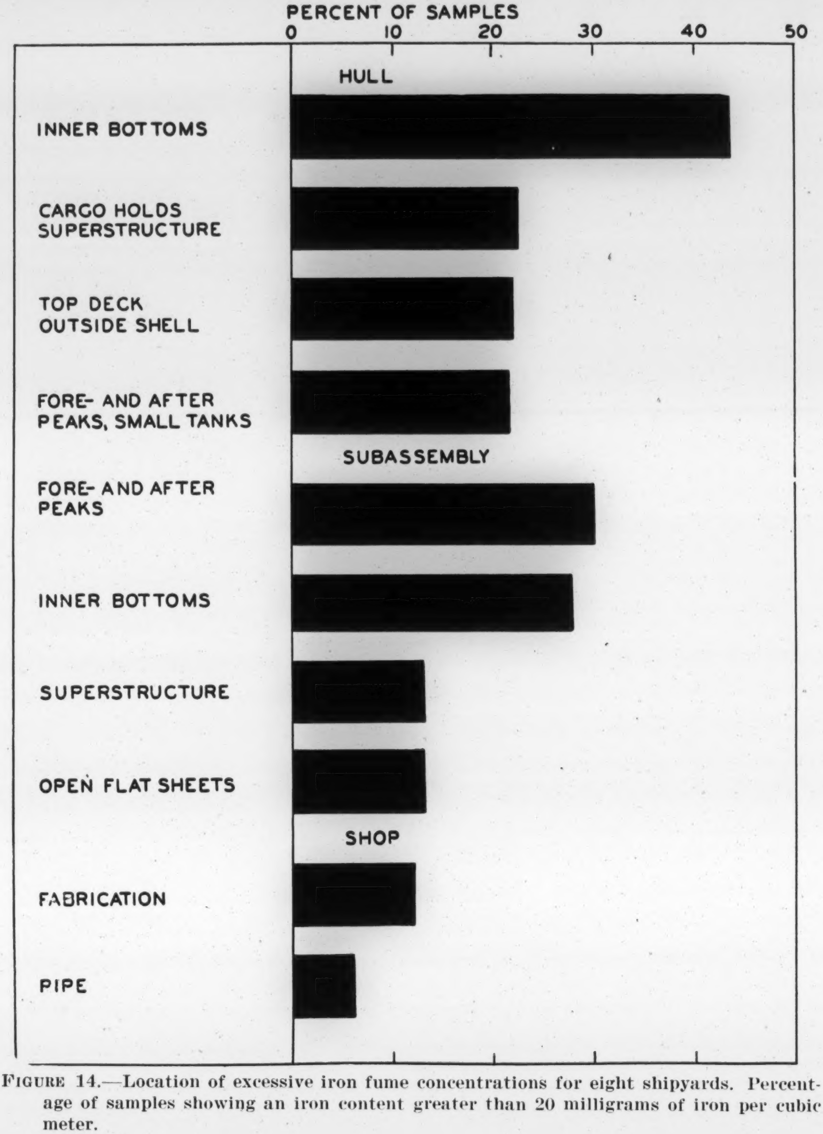


FIGURE 14.—Location of excessive iron fume concentrations for eight shipyards. Percentage of samples showing an iron content greater than 20 milligrams of iron per cubic meter.

are summarized separately for the Navy contract and the Maritime shipyards in table 8 and figure 15.

Only 25 welding fume samples were collected at a potential lead exposure. The source was lead-painted steel which required re-welding. The distribution of the analytical results of these samples is given in table 9 the concentration range being expressed as milligrams of metallic lead per cubic meter.

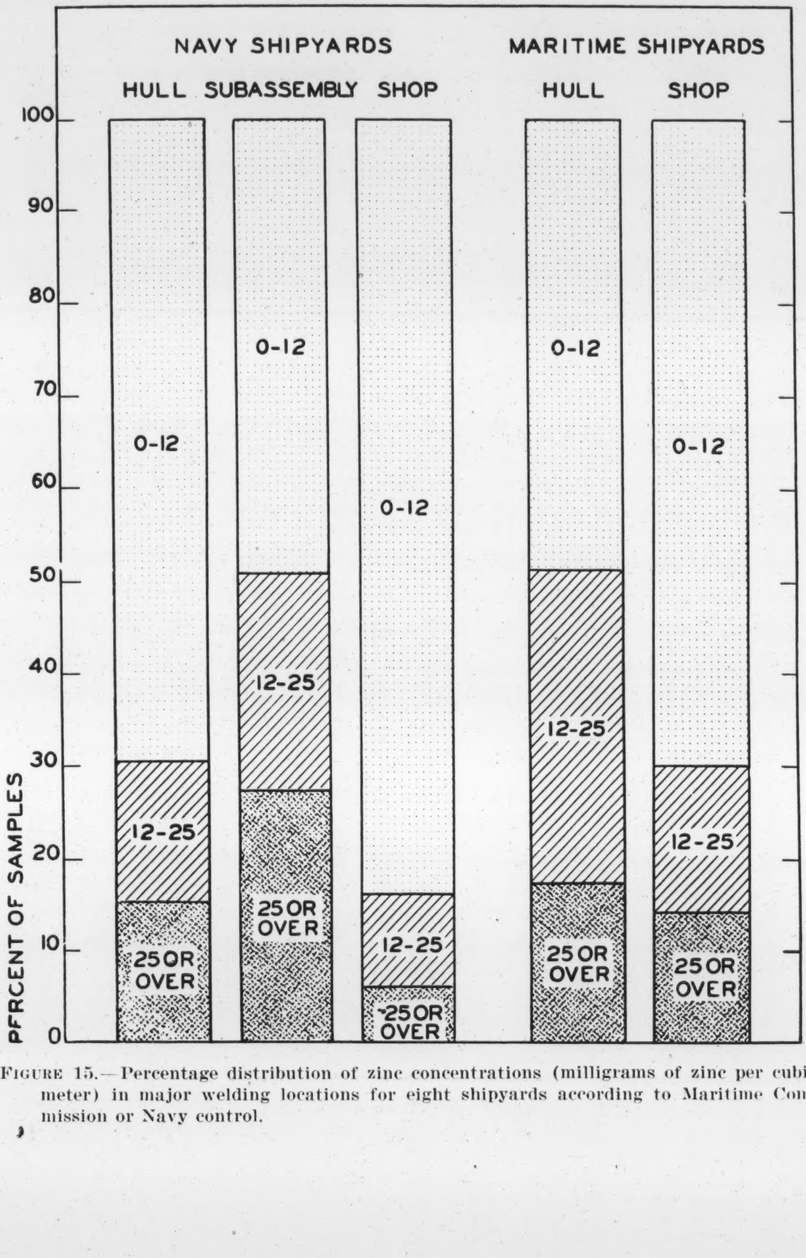


FIGURE 15.—Percentage distribution of zinc concentrations (milligrams of zinc per cubic meter) in major welding locations for eight shipyards according to Maritime Commission or Navy control.

TABLE 8.—*The distribution of zinc (mg. of zinc per cubic m.) in the major welding locations for eight shipyards according to Maritime Commission or Navy control*

Concentration range (mg. Zn per m³)	Samples by welding location					
	Hull		Subassembly		Shop	
	Number	Percent	Number	Percent	Number	Percent
	U. S. MARITIME YARDS (A, B, D, E and F)					
Total	47	100.0			30	100.0
0–12	23	48.9			21	70.0
12–25	16	34.0			5	16.7
25–60	6	12.8			2	6.7
60–100	2	4.3			1	3.3
100–200	0	0			1	3.3
200 or over	0	0			0	0
	U. S. NAVY CONTRACT YARDS (C and G)					
Total	92	100.0	59	100.0	50	100.0
0–12	64	69.6	29	49.2	42	84.0
12–25	14	15.2	14	23.7	5	10.0
25–60	11	11.9	13	22.0	3	6.0
60–100	1	1.1	3	5.1	0	0
100–200	1	1.1	0	0	0	0
200 or over	1	1.1	0	0	0	0

TABLE 9.—*Distribution of lead (mg. of Pb per cubic m.) in three hull welding locations*

Concentration range (mg. Pb per m³)	Number of samples by hull location		
	Fore- and after-peaks	Cargo holds, superstructure	Top deck, outside shell
Total	10	13	2
0–0.15	0	0	0
0.15–0.30	0	1	0
0.30–0.45	1	1	0
0.45–0.60	1	2	1
0.60–0.75	2	2	0
0.75–0.90	0	2	0
0.90–1.05	2	0	0
1.05–1.20	2	1	0
1.20–2.00	1	1	0
2.00–3.00	1	2	0
3.00 or over	0	1	1

It will be observed that none of the lead values of these samples appears in the permissible concentration range of 0 to 0.15 mg. per cubic m. (*61*).

OXIDES OF NITROGEN

Treatment of samples in the field

In each shipyard a small field laboratory was set up. Samples, after collection, were refrigerated in order to produce a negative pressure in the bottles. To each sample 10 ml. of a 0.1N sulfuric acid solution containing three drops of 3 percent hydrogen peroxide were then added. This was done with the aid of a hypodermic syringe fitted with a rubber adapter which enabled the addition of reagent without loss of gas sample. The bottles were then shaken and refrigerated. The usual time allowed for reaction was 8 to 12 hours and the minimum time in any case was 2 hours. The samples were transferred to clean, 60 ml. glass-stoppered bottles with the aid of two 15 ml. rinses of nitrogen-free distilled water, and then sent to the chemical laboratory.

Determination of nitrogen oxides in the chemical laboratory

The general procedure used for the determination of atmospheric oxides of nitrogen was as follows: After the samples were treated with an oxidizing reagent in the field laboratory they were shipped to the central chemical laboratory. The method of analysis here was a modified version of a Bureau of Mines procedure (*62*).

The samples were transferred to 250 ml. porcelain casseroles. Ten ml. of distilled water was used for the transfer and the total volume was made to 50 ml. The samples were neutralized with approximately 1 ml. of potassium hydroxide. The neutral point was checked with an outside indicator (litmus). The samples were then evaporated to dryness on a steam bath and cooled. Two ml. of phenoldisulphonic acid reagent were added by drops and brought into contact with the entire residue to dissolve it. Twenty ml. of distilled water were added, followed by 10 ml. of concentrated ammonium hydroxide. The samples were filtered, brought to 50 ml. volume, remixed and read on a photometer at 420 mμ. Three different instruments were used: Klett Summerson, Evelyn and Coleman spectrophotometers. The amount of nitrates was determined by a standard curve which had previously been prepared. The curve covered the range from 5.0 to 50.0 parts per million by volume of air based on a 200 ml. sample of air. Blanks, treated identically as the samples, were run with each batch of samples.

Analytical reagents

N/10 Sulfuric Acid.—This was prepared from C. P. concentrated acid.

3 Percent Hydrogen Peroxide.—This was prepared from 30 percent, reagent grade, hydrogen peroxide and was made one tenth normal in sulfuric acid.

Normal Potassium Hydroxide.—C. P. reagent was used.

Ammonium Hydroxide.—Reagent grade used.

Phenoldisulfonic Acid Reagent.—25 gm. of pure, white phenol were dissolved in 150 ml. of concentrated, reagent grade, sulfuric acid. The phenol was added slowly to the acid to prevent charring. After solution, 75 ml. of reagent grade, fuming sulfuric acid were added and the whole heated on a steam bath for two hours.

Stock Nitrate Solution.—A stock solution was prepared by dissolving 0.4025 gm. of potassium nitrate in distilled water and diluting to 1,000 ml.

Standard Nitrate Solution.—10 ml. of the stock nitrate solution were diluted to 1,000 ml. with distilled water.

General Precautions Observed.—In all reagents, blanks were run and all sources of nitrogen contamination were eliminated prior to use.

Results

More than half of the gas samples obtained in 7 shipyards contained less than 5 parts per million of nitrogen oxides and more

TABLE 10.—*The percentage distribution of nitrogen oxides (parts per million) in each welding location in 7 shipyards*

Location		Total	Nitrogen oxides (parts per million)						
Major	Minor		0–4	5–9	10–14	15–19	20–24	25 or over	Mean
		NUMBER OF SAMPLES							
Hull	Inner bottoms	172	98	51	18	1	1	3	5.2
	Fore- and after-peaks and small tanks	166	90	43	22	7	3	1	5.8
	Cargo holds, superstructure and other large spaces	661	364	180	68	22	13	14	5.9
	Top deck and outside shell	104	58	23	10	6	1	6	7.3
Subassembly	Inner bottoms	48	22	11	5	4	1	5	8.9
	Fore- and after-peaks	136	87	34	11	2	1	1	4.6
	Superstructure	69	34	24	4	7	0	0	5.8
	Open, flat sheets	257	170	59	13	10	3	2	4.7
Shop	Fabrication	295	176	67	39	9	3	1	5.2
	Pipe	111	56	30	11	3	6	5	7.4
		PERCENT OF SAMPLES							
Hull	Inner bottoms	100.0	57.0	29.6	10.5	0.6	0.6	1.7	------
	Fore- and after-peaks and small tanks	100.0	54.2	25.9	13.3	4.2	1.8	.6	------
	Cargo holds, superstructure and other large spaces	100.0	55.1	27.2	10.3	3.3	2.0	2.1	------
	Top deck and outside shell	100.0	55.8	22.1	9.6	5.8	.9	5.8	------
Subassembly	Inner bottoms	100.0	45.9	22.9	10.4	8.3	2.1	10.4	------
	Fore- and after-peaks	100.0	64.0	25.0	8.1	1.5	.7	.7	------
	Superstructure	100.0	49.3	34.8	5.8	10.1	0	0	------
	Open, flat sheets	100.0	66.1	23.0	5.0	3.9	1.2	.8	------
Shop	Fabrication	100.0	59.7	22.7	13.2	3.1	1.0	.3	------
	Pipe	100.0	50.5	27.0	9.9	2.7	5.4	4.5	------

than four-fifths of the samples contained less than 10 parts per million. Only 1.8 percent of the samples contained 25 parts per million or more.

Table 10 shows a distribution of nitrogen oxides according to minor location for all shipyards combined. It is interesting to compare the values in this table with 25 parts per million which has been suggested by some authorities as a maximum allowable concentration for nitrogen oxides (*61*). The highest proportion of samples exceeding 25 parts per million was 10.4 percent on the subassembly inner bottoms, followed by 5.8 percent on the top deck and outside shell of the hull and 4.5 percent in the pipe shop. The other subassembly and shop locations had less than 1 percent in excess of 25 parts per million. On the hull the cargo holds and superstructure showed 2.1 percent and fore- and after-peaks 0.6 percent.

Other authorities have suggested a maximum allowable concentration for nitrogen oxides of 40 parts per million. Only 5 (0.2 percent) of the shipyard samples exceed this value. Two were in the cargo holds of the hull, two on the top deck of the hull, and one was in the pipe shop. The highest value encountered was 62 parts per million.

Should 20 parts per million of nitrogen oxides be taken as the upper limit it will be observed that three locations have more than 6 percent of the samples in excess, four locations have from 2 to 6 percent in excess, and three locations have less than 2 percent in excess.

Comparison of the concentrations of nitrogen oxides (20 parts per million or over) with that of iron fume (over 20 mg. per $m.^3$) shows a difference in the relative exposures in the various shipyard locations. The highest concentrations on the hull are found in the inner bottoms for iron fume and on the top deck and outside shell for nitrogen oxides. Likewise, on the subassembly there is most iron fume in the fore- and after-peaks but nitrogen oxides are highest in the inner bottoms. The fabrication shop has a higher concentration of iron fumes than the pipe shop while the reverse is observed with respect to nitrogen oxides.

Shipyard differences in the percentage distribution of nitrogen oxides are not large with the exception of yard B which has higher concentrations than the others. Table 11 shows that 80 percent or more of the samples fall within 0 to 10 parts per million of nitrogen oxides in all but yards B and C. Excluding yard B no shipyard had more than 2 percent of the nitrogen oxide samples with a concentration of 25 parts per million or over. Yards E, F, and H had less than 5 percent of the samples exceeding a concentration of 15 parts per million. Yards C, D, and G had from 6 to 8 percent of the samples in excess of this concentration.

TABLE 11.—*The percentage distribution of nitrogen oxides (parts per million) in each of 7 shipyards*

Shipyard	Total	Nitrogen Oxides (Parts per Million)					
		0-4	5-9	10-14	15-19	20-24	25 or over
	NUMBER OF SAMPLES						
B	236	88	62	31	25	11	19
C	133	37	52	36	5	2	1
D	388	223	106	31	17	7	4
E	395	267	102	20	4	2	0
F	266	190	55	12	2	4	3
G	250	130	71	30	12	3	4
H	351	220	74	41	6	3	7
	PERCENT OF SAMPLES						
B	100.0	37.3	26.3	13.1	10.6	4.6	8.1
C	100.0	27.8	39.1	27.1	3.8	1.5	.7
D	100.0	57.5	27.3	8.0	4.4	1.8	1.0
E	100.0	67.6	25.8	5.1	1.0	.5	0
F	100.0	71.4	20.7	4.5	.8	1.5	1.1
G	100.0	52.0	28.4	12.0	4.8	1.2	1.6
H	100.0	62.7	21.1	11.7	1.7	.8	2.0

CHARACTERISTICS OF THE GROUP STUDIED

Number of workers examined

Completed schedules were secured from 4,650 individuals in 7 shipyards. Of this number 2,950 were males and 1,700 were females. According to exposure by craft 3,234 were welders, 1,005 were nonwelders and 411 had a mixed welding and nonwelding exposure.

Relation of workers examined to all shipyard workers

Assuming that the number of private shipyard wage earners, (1,183,673) estimated by the United States Department of Labor as of January 1944, is representative of employment conditions during the progress of this study, it would appear that 0.4 percent, or 1 out of each 255 shipyard workers in the United States, was included. The 7 yards selected had approximately 140,000 persons working at the time the medical examinations were made. Schedules were received for 2.5 percent of all male workers and 7.5 percent of all female workers. For particular yards the percentage of males sampled compared with the total males employed varied from 2.2 to 4.2 while the percentage of females varied from 4.0 to 16.5. The wider range for females is explained by the fact that yard policies differed greatly in the extent to which females were employed, while the sample was uniformly 60 percent male and 40 percent female.

Since the present study is concerned primarily with the health of welders it is of especial interest to observe the proportion of welders sampled. In the yards studied there were approximately 21,500 welders (15,100 males and 6,400 females). Schedules were obtained from 3,234 welders or 15.0 percent of the total (or 1 out of each 6.6 welders who were at work). According to sex the percent sampled was 13.2 for males and 19.6 for females. In only one shipyard were more than 16 percent of all the male welders examined, but in four yards more than one-fourth of all female welders were examined. The highest proportion of male welders employed who were examined was in shipyards D, G, and H and the highest proportion of female welders was in yards C, G, and H.

Classification of workers examined by shipyard

Table 12 shows by shipyard the number of welders, nonwelders and persons with mixed exposure examined according to sex. Of the males 67.4 percent were welders, 21.2 percent were nonwelders and

11.4 percent had mixed exposures. For females similar percentages were 73.2, 22.3, and 4.5.

TABLE 12.—*Distribution of shipyard workers according to sex, welding exposure and shipyard*

Shipyard	Grand total			Welders			Nonwelders			Mixed exposures		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
All shipyards	4,650	2,950	1,700	3,234	1,989	1,245	1,005	626	379	411	335	76
A	460	280	180	325	196	129	119	73	46	16	11	5
B	690	443	247	451	276	175	152	86	66	87	81	6
C	661	403	258	463	272	191	141	87	54	57	44	13
D	890	599	291	615	400	215	184	123	61	91	76	15
E	698	471	227	490	337	153	141	85	56	67	49	18
G	497	301	196	351	203	148	93	59	34	53	39	14
H	754	453	301	539	305	234	175	113	62	40	35	5

The percentage of females by yard ranges from 32.5 to 39.9. Of the colored males examined, 234 were welders, 46 were nonwelders and 18 had mixed exposures. A large proportion of these were Negroes, although there were also a few Chinese, Filipinos, Indians and Mexicans. The last mentioned were considered colored only when they were listed on the schedules as such. Those listed as white were so called.

Age distribution

The age distribution of the shipyard workers examined is shown in table 13. It will be seen that females are younger than males, reaching their greatest fequency in the age group 20–24 years and not appearing at all beyond 59 years of age. The largest percentage of males is found in the age group 10 years later, namely 30–34 years. The percentage of males exceeds that of females in all age groups except 20–24 and 25–29 years. The excess is especially evident beyond 44 years of age where the male percentage is 16.6 compared with 3.5 percent for females. The effect of induction into the armed forces is revealed by a decrease in the percentage of males in group 20–24 years as compared with the younger age group.

A comparison of the age distribution of shipyard workers with all employed wage or salary workers in the manufacturing industry as reported in the census of 1940 (*63*) shows that shipyard workers of both sexes are younger. Whereas, in the census report 29.2 percent of the males were 45 years of age or older, there were only 16.7 percent of the shipyard males in this age group. For females the difference was greater; the corresponding percentages being 13.4 and 3.5.

All considerations of welders and nonwelders should take age into account since the former are much younger than the latter. The difference is greatest for ages 45 years and over which include 5.6 percent of the welders and 27.2 percent of the nonwelders.

Figure 16 shows the age distribution for welders and nonwelders according to sex. Characteristic sex and occupation differences in the age curve are noted. The most youthful group are female welders, followed in order by female nonwelders, male welders, and male nonwelders. The curve for male nonwelders is much flatter than any of the other 3 curves, which indicates a more even age distribution for this group. The steepest curve is for female welders, followed by male welders. The tendency for welders to concentrate in certain age groups is observed for both sexes. The same tendency is present among female nonwelders.

TABLE 13.—*Age distribution of shipyard workers according to sex and welding exposure*

Age in years	Number						Percent					
	Total	Males	Females	Welders	Nonwelders	Mixed exposure	Total	Males	Females	Welders	Nonwelders	Mixed exposure
Total	4,650	2,950	1,700	3,234	1,005	411	100.0	100.0	100.0	100.0	100.0	100.0
15–19	383	255	128	307	62	14	8.2	8.6	7.5	9.5	6.2	3.4
20–24	648	194	454	507	106	35	13.9	6.6	26.7	15.7	10.5	8.5
25–29	876	494	382	666	143	67	18.9	16.7	22.5	20.6	14.2	16.3
30–34	1,020	692	328	785	153	82	21.9	23.5	19.3	24.3	15.2	19.9
35–39	731	500	231	527	133	71	15.7	17.0	13.6	16.3	13.2	17.3
40–44	440	323	117	260	136	44	9.5	11.0	6.9	8.0	13.5	10.7
45–49	225	184	41	103	85	37	4.9	6.2	2.4	3.2	8.5	9.0
50–54	150	135	15	49	75	26	3.2	4.6	.9	1.5	7.5	6.3
55–59	85	81	4	17	48	20	1.8	2.7	.2	.5	4.8	4.9
60–64	44	44	0	6	31	7	1.0	1.5	0	.2	3.1	1.7
65–69	38	38	0	6	26	6	.8	1.3	0	.2	2.6	1.5
70–74	10	10	0	1	7	2	.2	.3	0	(1)	.7	.5

[1] Less than .05 percent.

An examination of the age distribution of males and females in specific shipyards reveals a considerable degree of similarity. In appendix table 38 it will be seen that the maximum number of white males in all yards and of females in all but one yard is in the same age group as in the respective totals for males and females. Yards A, B, and H have less than 5 percent of the white males 55 years of age or over, while the remaining yards have from 5 to 11 percent in this older age group. Among females the percentage 45 years of age or over is less than 3 in yards A, B, and C, and from 3 to 7 percent in the other yards. If the percentages by age group for each

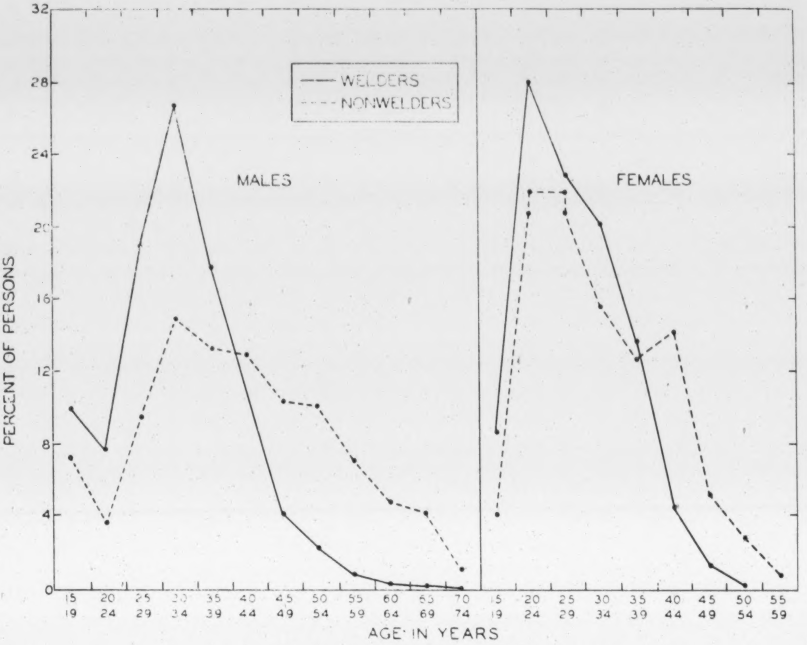


FIGURE 16.—Percentage age distribution of shipyard workers according to sex and welding exposure.

of the 7 shipyards are plotted on the same graph the curves correspond closely for the same sex except for the extremes of youth and old age

The age distribution of welders according to shipyard indicates that the older group is found in yards C, D, E and G. In no yard are there more than 10 percent of the welders 45 years of age or older. Yards A and B show more than 16 percent of the welders under 20 years of age.

The maximum percentage of nonwelders varies greatly from yard to yard. In two yards it is found in the 25-29 year age group, in three yards in the 30–34 year group, and in one yard each in the 35–39 year, the 40–44 year, and in the 50–54 year groups. The percentage of nonwelders who are less than 25 years of age varies from 6.9 to 28.3.

Marital status

Table 14 shows the marital status of shipyard workers. It will be noted that little difference exists between the welder- and the nonwelder-group of either sex, but there is a great difference between males and females. Of the males 79.3 percent were married compared with 57.9 percent of the females. The important reason for the smaller percentage in the latter group is the excess of widowed, separated, and divorced women at work in the shipyards.

When shipyard workers are compared with all operatives in the manufacturing industry according to the census of 1940, (*64*) it will be observed that among males the percent married is 79.3 and 70.6 respectively, the percent single is 16.3 and 26.3 and the percent widowed and divorced is 4.4 and 3.1. Corresponding percentages for females are 57.9 and 49.5, 23.1 and 41.5, and 19.0 and 9.0. The most striking difference is the larger percent of shipyard males who are married and of shipyard females who are widowed or divorced. For males this evidences the effect of the war in draining off single men. For females it indicates that women who work in shipyards do not have the same marital responsibilities as prewar factory operatives, but they more nearly correspond to domestic and service workers.

TABLE 14.—*Marital status of shipyard workers according to sex and color, for welders and nonwelders*

Occupation and color	Males				Females			
	Total	Married	Single	Other	Total	Married	Single	Other
	NUMBER							
Total [1]	2,923	2,318	475	130	1,697	983	392	322
Welders	1,974	1,534	360	80	1,242	711	284	247
White	1,742	1,359	314	69	1,242	711	284	247
Colored	232	175	46	11	------	------	------	------
Nonwelders	619	498	86	35	379	229	88	62
White	573	459	83	31	379	229	88	62
Colored	46	39	3	4	------	------	------	------
	PERCENT							
Total [1]	100.0	79.3	16.3	4.4	100.0	57.9	23.1	19.0
Welders	100.0	77.7	18.2	4.1	100.0	57.2	22.9	19.9
White	100.0	78.0	18.0	4.0	100.0	57.2	22.9	19.9
Colored	100.0	75.4	19.8	4.8	------	------	------	------
Nonwelders	100.0	80.5	13.9	5.6	100.0	60.4	23.2	16.4
White	100.0	80.1	14.5	5.4	100.0	60.4	23.2	16.4
Colored	100.0	84.8	6.5	8.7	------	------	------	------

[1] Totals for marital status include mixed exposure group.

A slightly larger percentage of male and female nonwelders were married than welders. This is probably due to the older age of the former group.

The percentage of males who were married ranged, according to shipyard, from 72.4 to 86.5, while the percentage of married females ranged from 43.6 to 66.0. In general, the Pacific coast shipyards had a larger percentage married than elsewhere, and the South a larger percentage single.

A breakdown of the "other" group, persons who were neither married nor single, reveals that among the males 52.3 percent were divorced, 32.3 percent were widowed and 15.4 percent were separated. Corresponding percentages for females were 54.3, 22.4 and 23.3, respectively. A larger proportion of males than of females were widowed but more females were separated. The divorced persons represent about the same percentage for both sexes, the females being slightly higher.

Place of birth

An indication of the extent of migration in the war and pre-war years is afforded by an examination of the State where shipyard workers were born as compared with the State where they were residing when interviewed for this study. Of the total persons giving this information 38.7 percent were working in the State in which they were born, 17.4 percent in an adjacent State, and the remaining 43.9 percent had migrated from more distant States. Great differences were observed in these percentages according to the location of the shipyard. In the 3 Southern shipyards persons born in the same or adjacent State represented 91.4, 91.5 and 90.4 percent of the total workers examined. On the Pacific coast similar percentages were 10.9, 14.3 and 29.6, while on the northeast coast the percentage was 82.3.

These figures give striking proof of the often repeated statement that west coast workers have come from great distances. Few were born in the States where they were working. The following tabulation shows the geographic locations where the 2,082 shipyard workers examined on the west coast were born:

Geographic division	Number	Percent
Total	2,082	100.0
West North Central	547	26.3
West South Central	531	25.5
Pacific	321	15.4
Mountain	205	9.8
East North Central	157	7.5
Foreign	135	6.5
East South Central	65	3.1
Middle Atlantic	64	3.1
South Atlantic	39	1.9
New England	18	.9

The group of States west of the Mississippi River and east of the Rocky Mountains contributed more than half of all the west coast shipyard workers. The States west of this group, including the Mountain and Pacific regions contributed a fourth of the workers.

The east central States contributed 10.6 percent and the Atlantic Seaboard 5.9 percent. Evidently people did not migrate in large numbers from areas in the East and Middle West where there were already important war industries established, but they came to the west coast from the agricultural States, and especially from those with a large proportion of submarginal land.

Shipyard workers in the South and Southeast have a very different migration pattern. They came to the shipyards from the immediately surrounding countryside; the vast majority were born in the same or adjacent State. Many, indeed, continued to live in their original village or farm home and commuted long distances to and from work each day.

Two hundred and twenty, or 4.7 percent, of the shipyard workers were born in foreign countries as follows: Canada 85, Northern Europe 70, Southern Europe 24, Asia including Pacific islands 22, Central and South America 11, and all other regions 8. Two shipyards had no foreign-born workers, two had less than 5 percent, and three had from 6 to 11 percent. Southern yards had few if any foreign born, while the Pacific and North Atlantic coast yards had the most foreign born.

There was no appreciable difference in the percentage born in the same or adjacent State among welders and nonwelders for specific shipyards. Variation is related to location of yard and not to the type of work done within the yard.

Living arrangements

Information was secured from each shipyard worker relating to his living arrangements. The objective was to learn the proportion living with their family and living alone, broken down according to type of accommodation such as house or apartment, rooming house or dormitory, and trailer and other. Table 15 shows that 77.1 percent of all workers were living in a normal family group, that is, with their relatives in a house or apartment. It is thought that many of the workers from rural sections had better sanitation and more modern conveniences in their present living quarters than in their former surroundings, which lacked running water and electricity. Most of the shipyards visited had large emergency housing developments which provided modern living quarters for many employees. Of the 195 persons who were living with their family but not in a house or apartment, 107 were living in trailers, cabins, or tents and 88 were living in rooming houses or dormitories.

Workers not living with their families numbered 864, or 18.7

percent. There were 447 of these who lived in rooming houses or dormitories, 394 who shared a house or apartment, and 23 living in trailers, cabins or tents.

Certain differences in living arrangements are noted according to sex and race. If living with family in house or apartment is considered the most desirable arrangement then white males are living under the best conditions and colored males under the worst conditions, with white females in between the two groups. In no group are as many as one-fourth living without their family. Many of the female employees are the wives of other shipyard workers or are single girls living with relatives. In one shipyard half of the married women had husbands working for the same company. The remainder were equally divided between husbands in the service and husbands working elsewhere. The problem of the single girl away from her home and family does not appear to be of great importance.

TABLE 15.—*Living arrangements of shipyard workers according to sex and color*

Living arrangements	Number				Percent			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
Total	4,632	2,640	296	1,696	100.0	100.0	100.0	100.0
With family in house or apartment	3,573	2,178	194	1,201	77.1	82.5	65.5	70.8
With family in other accommodations	195	74	37	84	4.2	2.8	12.5	5.0
Without family	864	388	65	411	18.7	14.7	22.0	24.2

The proportion of males living without their family was between 17.2 and 20.1 percent in five shipyards, 12.0 percent in one shipyard, and 8.7 percent in another shipyard. Among females there were 34.0 percent living without their families in one shipyard, 23.1 to 27.4 percent in four shipyards, and 17.7 and 17.8 in the two remaining yards. On a regional basis the Pacific coast and North Atlantic shipyards had a larger proportion of males, but a smaller proportion of females, living with their families than in the South.

Personal habits

In a section of the shipyard study schedule certain information concerning the habits of persons who were given the medical examination was listed. It was hoped that this might aid in the interpretation of the medical findings. A description of habits also has value taken by itself, since it helps to characterize the population included in the sample. The latter aspect will be considered here, and the medical relationships will be discussed later where appropriate.

Habits include the use of alcohol, tobacco, and drugs; hours of sleep; and the number of baths taken. Such questions are of so personal a nature that complete truthfulness in the answers cannot be expected. However, the general trends appear to be consistent and yield interesting comparisons by sex, race, and region.

Alcohol.—Nearly one-half of the shipyard workers said they did not consume any form of alcohol, 20.3 percent took beer and wine only, and the remainder took distilled liquors. Only 6 males admitted taking any form of alcohol to excess. The percentage taking no alcohol was; white males, 38.8, colored males, 39.2, and white females, 62.4. This is almost the same as found among Life Extension Institute members (*65*). When the percentage of white males is compared with the percentage of white females, the male excess is found to be greater for the use of beer and wine only than for the use of other types of alcohol. No female would admit the use of alcohol to excess.

The percentage not using alcohol differed very little for welders and nonwelders as a whole or for sex and race breakdown of these two groups. Among those who did use alcohol, the type of drink was also much the same for the two exposure groups.

Great variation existed from yard to yard in the percentage using alcohol. Among males the percentage ranged from 39.7 to 75.1, while among females it ranged from 14.9 to 62.2 percent.

For both sexes the percentage using alcohol was lowest in the South and highest on the Pacific and North Atlantic coasts. Areas where a larger proportion of the workers had had previous industrial experience showed a greater percentage admitting the use of alcohol.

Tobacco.—Use of tobacco was more general than the use of alcohol. Approximately four-fifths of the males and one-half of the females reported that they used tobacco in some form. This is slightly higher than male and much higher than for female Life Extension Institute members (*65*). In nearly every instance smoking, either alone or in combination with other forms of tobacco, was the type of use specified. Chewing tobacco or snuff only was reported by 2.4 percent, principally among males. Excessive use of tobacco (over 2 packs of cigarettes per day) was reported by 5.2 percent of the white males, 1.4 percent of the colored males, and 1.6 percent of the white females.

The percentage of nontobacco users was about the same for welders and nonwelders specific for race and sex. According to shipyard the use of tobacco among males ranged from 76.5 to 87.6 percent and among females from 36.9 to 59.4 percent. The highest proportion for males was in the South, while for females it was on the west coast.

Drugs.—Workers were questioned on the use of drugs such as laxatives, headache remedies, digestive aids, tonics, vitamins, medicines prescribed by a doctor and the like. The answers indicated that 79.8 percent of the shipyard workers were not accustomed to taking any drugs regularly. Headache remedies, including aspirin, were taken by 7.2 percent, laxatives by 6.0 percent, doctor's prescriptions by 2.5 percent, vitamins by 1.7 percent, digestive aids by 0.6 percent, tonics by 0.3 percent, and all other remedies by 1.9 percent. Only 16.4 percent of the white males took drugs regularly as compared with 38.3 percent of the colored males. Colored males took more than double the percentage of laxatives, digestive aids, tonics, doctor's prescriptions, and all other remedies than did white workers. White females took the largest percentage of headache remedies, 10.5 percent compared with 7.4 percent for colored males and 4.8 percent for white males.

The possibility that the welding environment might influence the use of certain drugs was considered. Drugs were taken by 16.7 percent of white male welders and 15.6 percent of white male nonwelders. The corresponding percentages for white females were 22.1 and 23.9. These differences are very small and may be entirely due to variation in the age composition of the two groups. The use of laxatives, headache medicines, and digestive aids showed little difference between welders and nonwelders.

Extreme variations exist among the shipyards with regard to the percent of workers using drugs. In one Southern yard 43.0 percent of the males and 37.2 percent of the females were using one or more kinds of drugs. In a west coast shipyard these percentages fell to 3.8 and 6.7, respectively.

Sleep.—Hours of sleep are closely related to the distance travelled each day from home to job. Persons living on farms and commuting long distances are likely to have little time remaining for sleep after they have done the necessary chores at home. Hours of sleep for all workers were as follows: less than 7 hours, 14.1 percent; 7 hours, 27.8 percent; 8 hours, 43.9 percent; 9 hours, 10.0 percent, and 10 hours or more, 4.2 percent. White males and colored males have almost the same distribution for hours of sleep. White females sleep longer. For example, 17.2 percent of this group slept 9 hours or more compared with 12.3 percent for the white males.

Approximately the same amount of sleep was reported by welders and nonwelders.

Two shipyards which had a large number of long distance commuters showed 20 percent or more of the males with less than 7 hours sleep per night, while another shipyard with large housing developments nearby showed only 7.4 percent with this lack of sleep. Despite child care and household tasks no shipyard showed as much as 16 percent of the females with less than 7 hours sleep. The percent with 9 hours or more sleep was greater for females than for males in all but one shipyard and here it was almost the same.

Baths.—If the seven shipyards are arranged in order according to the average temperature at the time of the survey an exact correspondence will be found with percent of males reporting daily baths. Beginning with the coldest shipyard and proceeding towards the warmest the percentage taking daily baths among males was as follows: 11.3, 14.2, 31.8 41.6, 71.5, 82.1, and 89.0. Racial and cultural patterns appeared to have little influence when compared with the weather. In the three Southern shipyards more than 95 percent of the females reported daily baths, while in the remaining yards the percentage ranged from 47.3 to 65.6. Except in the coldest shipyard less than 2 baths per week was seldom reported by females.

Welders showed a consistently larger percentage taking daily baths than did nonwelders, the difference being more marked in the three northernmost yards. The hot and strenuous work of welders necessitated more frequent bathing even when outside temperatures were low.

Previous occupational experience

Since understanding of the present physical condition of an individual is aided by a knowledge of his previous occupational history, the attempt was made to account for all periods of employment from beginning regular work up to the time of examination.

Inspection of the employment records of shipyard workers revealed wide diversity of experience for the same individual. Obviously each job could not be considered singly but must be grouped with other jobs according to some plan.

The following classification was designed to show the degree of exposure to possible occupational hazards. First, there is a group who had had no previous regular employment; mostly young persons and housewives. All persons with less than 12 months' work history and those under 17 years of age were classed in this group. The second group includes persons with experience solely in agriculture, forestry or fishing. The large majority of these were farmers who either farmed all year or did lumbering in off seasons. The third group includes persons who had been engaged in agriculture, forestry or fishing but who also had had experience in trade or service industries. For example, farmers who had become filling station operators, truck drivers or carpenters, but had had no manufacturing or mining experience. Fourth, persons with trade or service experience only. Included were such occupations as automobile mechanic, baker, barber, bill collector, carpenter, cook, nurse, plumber, salesman, sailor, seaman, soldier, shoemaker, service station operator, stenographer, teacher, telephone operator, truck driver, and waitress. Persons in group four had done no farm work since 17 years of age with the consequence that they had longer exposure to possible occupational hazards than persons in group three. Group five includes persons employed for at least 90 percent of their total working life in manufacturing industry. For example, cotton mill operators, steel mill workers, automobile plant workers, and workers in shoe factories are included. Skilled tradesmen, unless working in a factory, are listed under groups three or four. Group six includes persons exposed to dusts or fumes which are potentially hazardous. No matter how long an individual might have worked at other trades he was included in this group if he had worked a year or more at non-shipyard welding, mining or quarrying, foundry work, fur felt hat manufacturing, T.N.T. manufacturing, or metal plating. Group seven comprises all persons not elsewhere classified. These are mainly people with experience in groups one, two, or three who also worked in manufacturing industry. Persons with indefinite classifications such as "general labor" were placed in this group.

Table 16 shows the occupational experience of males and females according to shipyard. The diversity of occupational backgrounds found among workers in different shipyards is of the greatest importance when comparing physical findings with welding exposure. More than 25 percent of the male workers in three yards, all in the South, had no previous work experience other than groups one and two. They were farmers or young persons who had not before been gainfully employed. At the other extreme is a North Atlantic shipyard with only 4 percent in this classification. The group with experience in agriculture and trade or service ranged from 10.0 to 22.2 percent. Considering trade or service, either with or without agriculture, the percentages were highest on the North Atlantic and west coasts. Persons with trade or service experience only probably represent a group with predominantly urban backgrounds. Experience in dusty trades was most common in the west coast shipyards. Many of these individuals had done non-shipyard welding or had worked in the mining industry. Few males except on the North Atlantic coast had worked exclusively in manufacturing. Many classified under "other" had worked at some time in manufacturing but had been forced to seek different work during the depression years. Those who had been able to keep manufacturing jobs steadily seldom sought shipyard employment. The high shipyard wages were most alluring to farmers and to trade and service workers who had relatively low incomes even during the war period. An outstanding characteristic of the occupational experience of male shipyard workers is the variety of jobs held by the same individual for short spaces of time. This suggests that during periods of normal business activity these persons are near the margin of employability. Many of the west coast shipyard workers with a farming background came from the "dust bowl" area where living conditions during the past decade were very hard. In the South tenant farmers secured shipyard work in large numbers. All in all, the occupational histories indicate a group of persons who had lived on a relatively low economic level and who may not have been able to take full advantage of modern methods for the maintenance of health. This adds to the difficulty of separating the influence of previous environments from the possible effects of working conditions in the shipyard.

TABLE 16.—*Percentage of shipyard workers according to previous occupation and sex, by shipyard*

Previous occupation	Total	Shipyard						
		A	B	C	D	E	G	H
	MALES							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None	9.0	17.8	16.7	14.0	6.7	5.1	4.7	1.8
Agriculture, forestry, and fisheries only	7.9	10.6	13.6	13.3	4.3	6.6	7.7	2.2
Agriculture, forestry, and fisheries and trade or service	15.2	13.5	22.2	15.8	13.7	14.7	17.0	10.0
Trade or service only	26.3	14.5	9.3	21.8	34.4	29.0	29.0	38.7
Manufacturing only	6.4	8.4	3.5	3.8	2.3	3.4	3.3	21.1
Dusty occupations	10.9	6.5	4.2	7.0	16.7	13.0	21.3	6.7
All other	24.3	28.7	30.5	24.3	21.9	28.2	17.0	19.5
	FEMALES							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None	44.9	55.1	55.5	59.3	52.9	41.6	35.2	18.9
Agriculture, forestry, and fisheries only	.3	1.1	.4	0	0	.4	.5	0
Agriculture, forestry, and fisheries and trade or service	-----	-----	-----	-----	-----	-----	-----	-----
Trade or service only	36.7	21.9	25.1	35.7	30.9	42.6	54.1	45.9
Manufacturing only	11.6	17.4	12.5	3.1	7.6	7.5	5.6	25.3
Dusty occupations	.2	0	.4	.4	0	.4	0	.3
All other	6.3	4.5	6.1	1.5	8.6	7.5	4.6	9.6

Female shipyard workers have a very different occupational history than males. With them the most important groups are "no occupation" and trade or service. According to shipyard the percent of females with no previous work experience ranged from 18.9 to 59.3. The lowest percentages were on the North Atlantic and North Pacific coasts. More limited opportunity for prewar employment in the South apparently led to a large proportion of females with no previous work experience. Since it was impossible to classify women living on a farm as laborers or nonlaborers there were few women listed under agriculture and none under agriculture plus trade or service. Included under trade or service only were a large number of store clerks, waitresses and domestics. A much larger percentage of females than males had previous experience in manufacturing. Former textile mill operatives were an important part of this group, especially in the South. A much larger proportion of females than of males could be classified under one particular occupation, so the "all other" group is smaller. In no shipyard did it amount to as much as 10 percent for females.

Differences in the occupational experience of welders and nonwelders were insignificant. A slightly larger percentage of the male welders had an agricultural background. The male nonwelders frequently had been engaged in manufacturing, trade or service and dusty occupations. White female welders had a larger percentage with no occupation and in manufacturing than white female nonwelders.

Welding experience

A total of 246 shipyard workers had done some outside welding, i.e. they had welded before coming to the shipyard. Among the various groups of shipyard workers the percentages having done outside welding were as follows: white male welders 11.8 percent, white males with mixed exposure 5.7 percent, colored males 3.2 percent, white females with mixed exposure 1.3 percent, and white female welders 1.0 percent. Among white male welders there was a trend toward a larger proportion with outside welding experience as the length of shipyard welding increased. In other words, the earlier recruits to shipyard welding included more persons with previous experience in the trade than was found among workers hired later. The great majority of outside welding employment did not involve continuous welding. Ordinarily such welding was only a part, and often a minor part, of another job. For example blacksmithing, automobile repair, bridge construction, foundry work, machine shop work and the like.

Number of months of shipyard welding is closely related to the total shipyard experience of welders, since the majority began welding or welding training at the time they were hired. In consequence great yard to yard variation in welding experience may be expected as the various shipyards had been in operation different lengths of time. The percentage of the white male welders who had more than 1 year's welding experience varied from 87.5 in one shipyard to 37.2 in another shipyard. When welding experience is lengthened to 2 years or more the percentages range from 3.0 to 69.7. In no shipyard did as much as 6 percent of the welders exceed 3 years of experience. A total of 19 white male welders had worked at their trade more than 4 years in the shipyard.

As would be expected months of shipyard welding among males were longest for welding leadermen. Of this group 27.9 percent had worked more than 3 years, compared with 18.4 percent for pipe welders and 4.5 percent for production and tack welders.

All but 2.4 percent of the white female welders had worked less than 2 years and 54.5 percent had welded less than 1 year.

If welding experience outside the shipyard is combined with shipyard welding it is found that 17.5 percent of the white male welders had worked at their trade for more than 3 years. Because of the intermittant character of most outside welding no conclusions can be drawn regarding the intensity of exposure for approximately half of the persons in this group who had less than 3 years of welding experience in shipyards.

Shipyard occupations

The shipyard workers studied fall into three principal groups, namely welders, nonwelders, and persons with mixed exposure. The percentage distribution of persons in these groups was 69.6, 21.6 and 8.8, respectively.

More than four-fifths of the 3,234 welders were either doing or learning to do production arc-welding. Pipe welders and leadermen were represented by 201 (6.2 percent) persons each. There were also 72 welder's helpers, 58 "Unionmelt" operators, 26 gas welders, 22 combination gas and electric welders, 6 spot welders and one thermite welder.

Nonwelders (1,005) covered a wide range of occupations because they were chosen to represent as nearly as possible the economic status and skill requirements of welders without being exposed to welding fumes. Occupations meeting these requirements varied considerably from yard to yard. Persons in the more important nonwelding occupations numbered 294 electricians, 192 machinists, 182 sheet metal workers, 58 clerical workers, 42 tool room attendants, 35 layers out, 25 shipfitters and 18 weld checkers. Occupations of less importance were cold press operator, crane operator, driller, fabrication shop worker, flanger, laborer, lathe operator, mechanic, punch press operator, rigger, tank tester and tool maker.

Persons were placed in the mixed exposure group because they did not have a clearly defined welding or nonwelding work history. Included were all workers engaged in ship repair rather than new ship construction at the time of the study; persons whose work in the past had exposed them to substances potentially harmful to health, such as silica dust or certain chemicals; persons not welding at present but with a history of past welding experience; and persons not welding but at present exposed to heavy concentrations of welding fumes. All such individuals had some exposure other than that directly associated with their present job which might influence the medical findings.

In table 17 the various types of welders are grouped according to the location of their work. Comparing all males with females it will be noted that the former are more frequently on the ways (50.0 percent) and the latter on the platens (50.5 percent). Among production welders a slightly larger percentage of males and females worked at these locations. The two most important locations for leaderman were ways (38.5 percent) and platens (33.3 percent); for male pipe welders, ways (45.1 percent) and outfitting docks

TABLE 17.—*Present occupation of welders in shipyards according to location of work place, by sex*

Present occupation	Total	Platens	Ways	Outfitting docks	Shops	All other	Not stated
				MALES			
Total	1,989	434	979	359	137	49	31
Production welder[1]	1,453	305	791	249	71	21	16
Leaderman	201	64	74	27	16	11	9
Pipe welder	185	7	83	57	30	7	1
Welder's helper	54	17	17	13	2	3	2
All other welders	96	41	14	13	18	7	3
				FEMALES			
Total	1,245	628	318	121	149	27	2
Production welder[1]	1,194	617	308	117	125	25	2
Pipe welder	16	1	2	2	11	0	0
Welder's helper	18	4	6	2	4	2	0
All other welders	17	6	2	0	9	0	0

[1] Includes trainees.

(31.0 percent); and for male welder's helpers, ways and platens, each (32.7 percent). Female pipe welders were found most frequently in the shops (68.8 percent).

Nonwelders were working for the most part in the shops. There were also a number of electricians and sheet metal workers who were located on the outfitting docks.

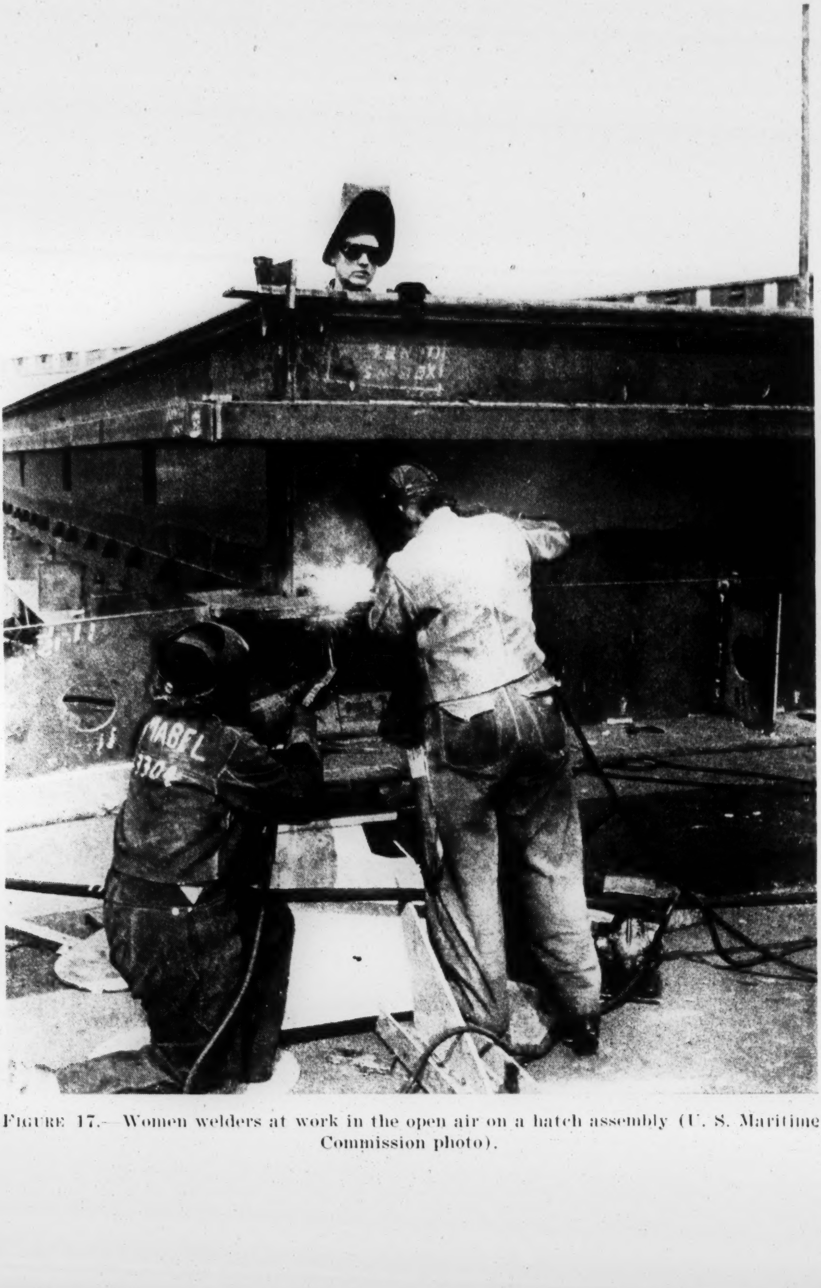


FIGURE 17.—Women welders at work in the open air on a hatch assembly (U. S. Maritime Commission photo).

Figure 17 shows a characteristic type of work performed by women welders in the shipyards. They are working outside on the platens welding a hatch assembly. Figure 18 depicts work commonly done by men on the ways. It will be observed that work in the double bottoms is very closely confined. There is little space between the shell plates and the lower deck of the cargo hold.

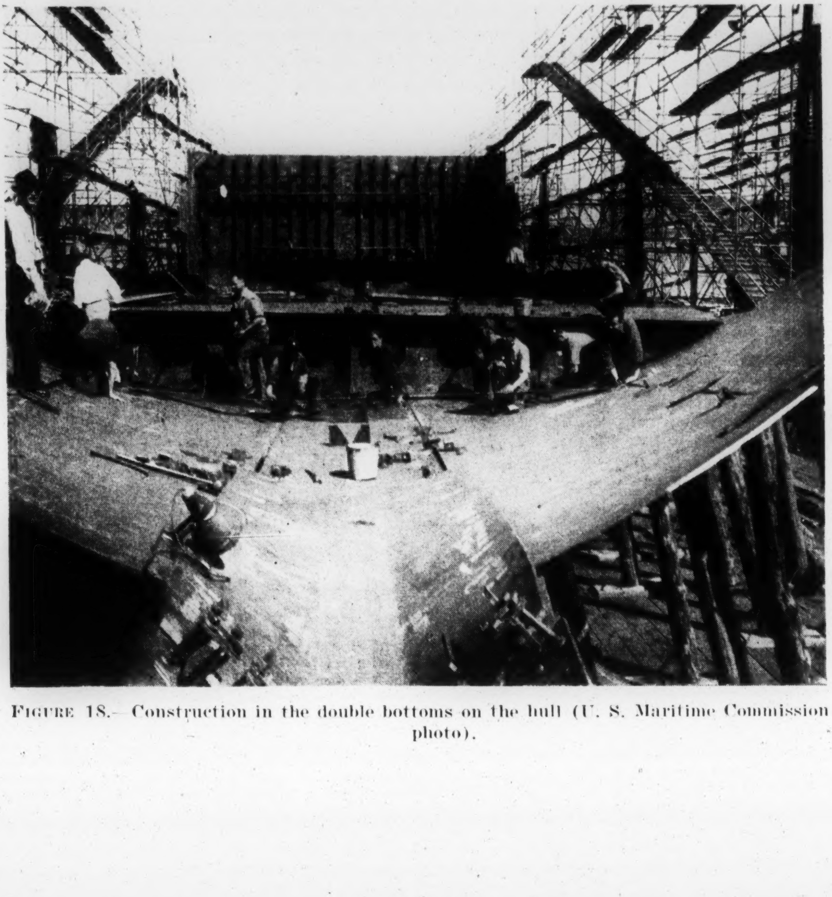


FIGURE 18.—Construction in the double bottoms on the hull (U. S. Maritime Commission photo).

PAST MEDICAL HISTORY

PREVIOUS ILLNESSES

Respiratory, rheumatic and skin diseases

Shipyard workers were questioned whether they had ever suffered from certain types of illness. These types were such that reasonably accurate answers could be expected from the persons giving the information. Attacks of illnesses recalled by males and females were as follows: pneumonia, 20.7 and 16.4 percent; sinus trouble, 17.8 and 14.9 percent; rheumatism, 16.6 and 10.1 percent; skin trouble, 9.9 and 8.9 percent; asthma, 5.0 and 2.9 percent; and pulmonary tuberculosis, 1.2 and 0.9 percent. Without exception, a smaller percentage of females reported previous illnesses than males. When the population studied was divided into persons under 40 years of age and those 40 years or over, it appeared that differences were slight for either sex, except that a greater proportion of the attacks of sinus trouble and rheumatism among females and of rheumatism among males was reported in the older age group.

Geographical location of the shipyard produced considerable difference in the percentage of persons who had had certain diseases. Studying males under 40 years of age it was found that a past history of tuberculosis was high on the Pacific coast, being 1.8, 1.7 and 1.7 percent in these shipyards, while no other shipyard had over 0.7 percent. Sinus trouble was lower in the South than in other sections. Rheumatism was high in the northern part of both the Pacific and Atlantic coasts. There was a larger percentage of persons with past history of skin trouble in the three northernmost yards. No distinct regional differences were noted with respect to asthma and pneumonia. Females less than 40 years of age showed, in general, the same regional differences as were found among males of that age group.

Metal fume fever

In five shipyards, including the two Navy-contract yards, it was possible to secure a history of attacks of metal fume fever. Two-thirds of the cases occurred in the Navy-contract yards where a large percentage of the work is done on galvanized metal. Most of the Maritime-contract shipyard workers who had had metal fume fever were pipe welders working on galvanized pipe.

Of the 273 male workers reporting the time since the last attack of metal fume fever, 38.5 percent had been sick within 1 month of the time when they were examined, 28.6 percent from 1 to 6 months, 13.9 percent from 6 months to a year, and 19.0 percent for longer than a year. Corresponding percentages for 76 females examined were 48.7, 30.3, 19.7 and 1.3, respectively. In addition to the above, there were 98 males and 49 females who had had attacks of metal fume fever but the time of the attack was not specified on the case record.

The attacks as described in the case histories showed that they followed the usual pattern (*66*, *67*) of metal fume fever (oxide chills, galvo or zinc oxide fever) though there was considerable variation in the severity of attacks. Attacks occurred among personnel on each working shift and usually followed situations in which the worker was exposed quite unavoidably to high concentrations of fume. Frequent repeated attacks seemed to occur during early stages of production welding or until the welder had learned the exact amount of ventilation needed to prevent them. In a few instances the individual welder had undergone a change in his work to lessen exposure, such as changing from the welding of galvanized steel to black iron.

The worker usually reported he would have worked the first half of the shift before becoming nauseated and dizzy and experiencing a sense of constriction in his chest. Often he would drop his work and step out into the open air. Ordinarily, though feeling nauseated and with increasing malaise, he would complete his shift. Not infrequently either on his way home or shortly thereafter, he would vomit and have chilly sensations. Headache and myalgia were common complaints. He would ordinarily feel so ill that he would go to bed as soon as he reached home, taking a drink of hot lemonade or milk. Soon chills would set in, becoming more and more severe with concomitant fever. Not infrequently he would vomit for the first time as the rigor reached a crescendo, then he would perspire profusely and drop off into profound sleep. Most workers stated that they were able to report for duty on their next shift though experiencing general weakness. Some of the few attacks occasioning loss of time seemed to represent the initial stages of a rather severe upper-respiratory infection such as tonsillitis. It is not uncommon (*67*) for workers exposed to zinc fumes to be particularly susceptible at such times. Three or four days was the maximum duration of attacks not complicated by infection.

MENSTRUAL HISTORY

The adaptability of women to shipyard work was a question of diverse opinion in the early stages of the industrial war effort (*68*). It is a well-known fact that a high proportion of women experience discomfort periodically in connection with the menstrual function. The discomfort is severe enough to cause disability in a certain number. Hence it is of interest to note the menstrual experience of women in the shipbuilding industry.

Menstrual disturbances, based on information given by the worker, were analyzed from three viewpoints: dysmenorrhea; irregularity of menstruation; and changes in dysmenorrhea, regularity and menstrual flow which had occurred since engaging in shipyard work.

Functional dysmenorrhea is of frequent occurrence but little is known (*69*) of the actual causes of this pain in the pelvis at the time of menstruation. In the present investigation it was observed with the same frequency among 1,138 welders and 306 nonwelders (45.0 and 45.1 percent, respectively). This prevalence approximates usual clinical experience (*68*, *70*). The distress as reported by the worker decreased in prevalence and severity with age. Of the women who reported on this condition, 43.9 percent of the married ones and 52.8 percent of the single ones had some discomfort. It was slightly more prevalent among women affected with the upper-respiratory symptom complex. Although women were employed on all three working shifts, there was no significant difference in the occurrence of dysmenorrhea by shift.

Menstrual irregularities as recorded are hard to define. They represent the woman's own opinion, but usually she supplied additional information. Most often menstruation was reported as irregular when the time span from one menses to the next varied considerably in length. Two hundred and thirty-one, or 19.6 percent, of 1,178 welders and 57, or 17.8 percent, of 320 nonwelders reported menstrual irregularities. They were slightly, but not significantly, more frequent among second and third shift workers than among the day shift workers. A larger percent of those diagnosed as suffering from upper-respiratory symptom complex were irregular than those who were apparently healthy (no diagnosis).

With reference to change in regularity, flow, and/or dysmenorrhea since beginning shipyard work, it was found that women employed as welders reported a change in one or more of these attributes about twice as frequently as nonwelders. Thus, 311 (28.4 percent) of 1,097 welders and only 42 (14.4 percent) of 291 nonwelders reported a change. That this difference is not due to age factor alone is indicated by the ratio being slightly more than 2 to 1 when only women under 30 years of age are considered. For women 30 years or older, it was found that 24.3 percent of the welders and 15.7 percent of the nonwelders reported a change of some description since engaging in shipyard work.

The difference here observed between welders and nonwelders as regards change in regularity, flow and dysmenorrhea must be discounted somewhat because in some women the change was from an abnormal state to a normal one. Abnormal changes in welders were frequently attributed to climbing and dragging lines.

Briefly then, there was no difference between welders and nonwelders in the prevalence of dysmenorrhea; only a slight difference in regularity of menstruation and a possible significant difference as regards change of the menstrual function. It would appear that, in general, these dysfunctions are of little consequence for women in the shipbuilding industry particularly if provision is made for brief rest periods when necessary.

Women in the menopause have not been included in the above discussion. They number 110.

PHYSICAL EXAMINATION FINDINGS

WEIGHT

The percent deviation of each shipyard worker's weight from the weight of men of similar height and age was calculated from life insurance data (*71*). Thus it is possible to determine what proportion are underweight or overweight.

Table 18 and figure 19 show a comparison of the percent weight deviation of male shipyard workers with certain other groups of male industrial workers (*72, 73, 74, 75*). If plus 15 percent or greater is arbitrarily considered overweight and minus 15 percent or less is considered underweight, it will be observed that coal and metal miners have a larger group who are normal than shipyard workers, while truck drivers have a larger percentage overweight and smelter workers more who are underweight.

TABLE 18.—*Percentage distribution of male shipyard workers and other male industrial workers by percent weight deviation from the average weight of men of their height and age according to life insurance tables*

Percent deviation from average	Shipyard workers	Truck drivers	Coal miners	Metal miners	Smelter workers
Total	100.0	100.0	100.0	100.0	100.0
−25	0.5	0.3	0.8	0.6	1.3
−15 to −24	8.5	6.2	7.7	5.5	8.6
−5 to −15	26.1	24.1	34.5	27.0	28.3
±5	34.0	29.2	33.1	37.1	32.1
+5 to +14	18.4	22.1	15.1	20.3	18.9
+15 to +24	8.5	10.3	5.8	7.3	7.2
+25 to +34	2.6	4.4	1.8	1.4	2.6
+35 or over	1.4	3.4	1.2	.8	1.0

The small group who are very much overweight, 35 percent or more above the average, represent 1.4 percent of the shipyard workers, 3.4 percent of the truck drivers, 1.2 percent of the coal miners, 1.0 percent of the smelter workers, and 0.8 percent of the metal miners.

Examination of the weight deviation of male welders and nonwelders reveals a greater range at both ends of the scale for nonwelders. Welders have 80.4 percent within ± 15 percent deviation compared with 73.9 percent for nonwelders.

The weight deviation for females was calculated using the life insurance data for males. Although the age and height correction

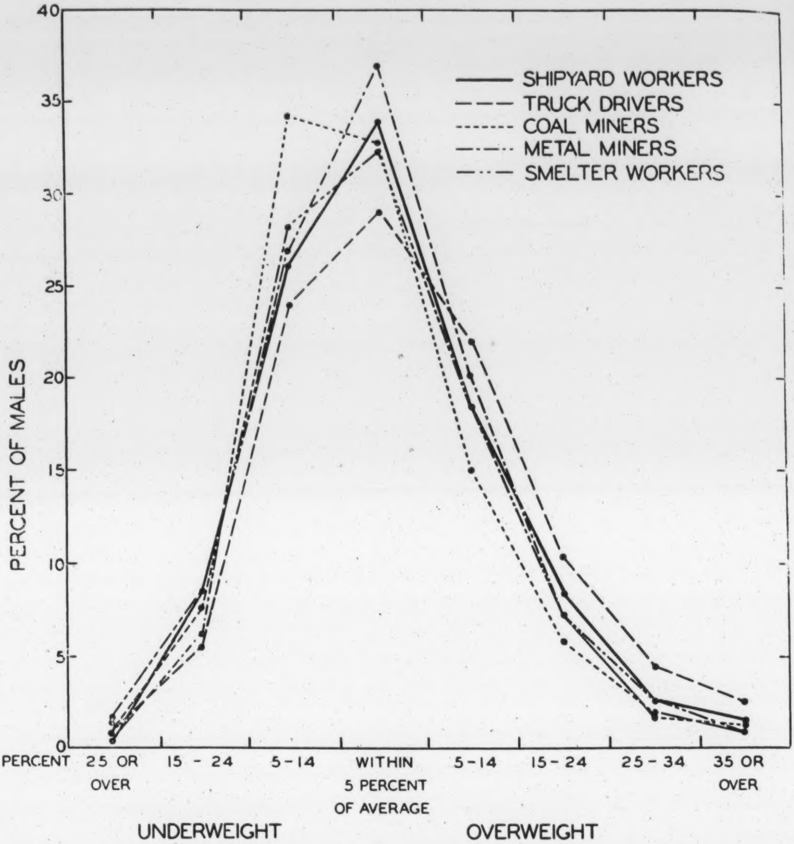


FIGURE 19.—Percentage distribution of male shipyard workers and other male industrial workers by percent weight deviation from the average weight of men of their height and age according to life insurance tables.

obtained by this method may not be exact, the broad outlines probably represent real sex differences. The most notable difference is the greater variability in the percentage weight deviation of females. The curve is much flatter and is skewed toward the values representing underweight.

Shipyard differences in the percent weight deviation of males are very great (see appendix table 39). For example, yard H has 4.7 percent of the white males 15 percent or more underweight compared with 15.2 percent for yard C. In general, the Southern shipyards show more males underweight than do the northern or western yards. The higher the average annual temperature the larger the percent underweight. Possible nutritional differences should also be taken into consideration.

VISUAL ACUITY

Shipyard workers were given that part of the Keystone test which measures visual acuity. If a worker came to the examination wearing glasses he was tested with his glasses on so that the results should approximate visual ability under normal working conditions.

Table 19 shows the visual acuity of each eye separately for males and females by age. A great amount of detailed information can be obtained from this table. For example, the percentage of males with

TABLE 19.—*Distribution of shipyard workers by visual acuity (Keystone) of each eye according to age and sex*

Visual acuity left eye	Visual acuity right eye						
	Total	20/20	20/33	20/45	20/60	20/75 or less	Not stated
	MALES: UNDER 30 YEARS						
Total	943	647	145	59	16	54	22
20/20	630	516	72	14	3	24	1
20/33	193	97	54	23	4	11	4
20/45	47	16	11	9	5	6	0
20/60	22	6	5	7	2	2	0
20/75 or less	28	7	3	4	2	11	1
Not stated	23	5	0	2	0	0	16
	30-39 YEARS						
Total	1,192	814	202	77	26	43	30
20/20	771	613	106	24	6	17	5
20/33	264	141	72	31	10	9	1
20/45	64	35	13	9	5	2	0
20/60	20	3	3	8	3	2	1
20/75 or less	37	13	5	5	2	12	0
Not stated	36	9	3	0	0	1	23
	40-49 YEARS						
Total	507	319	107	31	13	24	13
20/20	320	242	52	14	6	6	0
20/33	108	55	37	7	5	4	0
20/45	29	6	10	9	0	3	1
20/60	11	1	4	1	1	3	1
20/75 or less	23	12	3	0	1	7	0
Not stated	16	3	1	0	0	1	11
	50 YEARS OR OVER						
Total	308	141	89	33	13	21	11
20/20	150	97	32	8	3	9	1
20/33	81	30	34	9	2	5	1
20/45	33	4	11	10	4	3	1
20/60	8	1	4	2	0	1	0
20/75 or less	19	5	4	3	3	3	1
Not stated	17	4	4	1	1	0	7

TABLE 19.—*Distribution of shipyard workers by visual acuity (Keystone) of each eye according to age and sex*—(Continued)

Visual acuity left eye	Visual acuity right eye						
	Total	20/20	20/33	20/45	20/60	20/75 or less	Not stated
	FEMALES: UNDER 30 YEARS						
Total	964	641	159	65	25	46	28
20/20	587	468	76	14	7	18	4
20/33	215	129	49	23	8	3	3
20/45	65	19	17	17	6	3	3
20/60	22	4	6	3	4	4	1
20/75 or less	45	11	8	8	0	17	1
Not stated	30	10	3	0	0	1	16
	30–39 YEARS						
Total	559	350	124	43	14	17	11
20/20	344	257	56	14	3	11	3
20/33	142	67	52	15	5	2	1
20/45	37	13	10	11	1	1	1
20/60	9	4	1	1	3	0	0
20/75 or less	20	8	4	2	1	3	2
Not stated	7	1	1	0	1	0	4
	40–49 YEARS						
Total	158	92	39	10	5	4	8
20/20	94	68	18	1	1	1	5
20/33	38	17	15	4	2	0	0
20/45	12	4	3	3	2	0	0
20/60	4	0	1	1	0	2	0
20/75 or less	5	2	1	1	0	1	0
Not stated	5	1	1	0	0	0	3
	50 YEARS OR OVER						
Total	19	9	5	3	0	1	1
20/20	13	9	3	1	0	0	0
20/33	4	0	2	1	0	1	0
20/45	0	0	0	0	0	0	0
20/60	0	0	0	0	0	0	0
20/75 or less	1	0	0	1	0	0	0
Not stated	1	0	0	0	0	0	1

20/20 vision in both eyes was 56.5, under 30 years of age, 53.4, 30–39 years, 49.5, 40–49 years and 31.5, 50 years or over. Percentages for females were 50.8, under 30 years of age, 47.2, 30–39 years, and 46.4, 40 years or over. A much larger percentage (of both sexes) had at least one eye with 20/20 vision. Among persons under 30 years of age the percentage with normal vision in one or both eyes was 82.1 for males and 80.2 for females. In the next older age group, 30–39 years, the percentage was 83.1 for males and 78.7 for females. Among those forty years or over, the percentages were 74.2 for males and 75.7 for females. It will be noted that in general females have poorer vision than males of the same age. This is consistent with the findngs of earlier studies including Farm Security Administration borrower families (*76*) and Life Extension Institute members (*77*).

At the other extreme persons with visual acuity that did not exceed 20/45 in either eye amounted to 5.3 percent of the males and 6.7 percent of the females under 30 years of age, 4.2 percent for each sex, 30–39 years of age, and 7.0 percent for males and 6.6 percent for females 40 years of age or over. Neither age nor sex affected materially the proportion in this group with the poorest vision. Apparently, in a working population uncorrectable vision is not likely to fall below certain levels except among a small group of employees.

The visual requirements of welding are such that good eyesight is essential. Close work which must be observed through protective glass leaves little opportunity for persons with faulty vision. An examination of the visual acuity records of male welders and nonwelders under 40 years of age shows that 55.2 percent of the former and 54.4 percent of the latter had 20/20 vision in both eyes (fig. 20). An additional 28.2 percent of the welders and 29.3 percent of the nonwelders

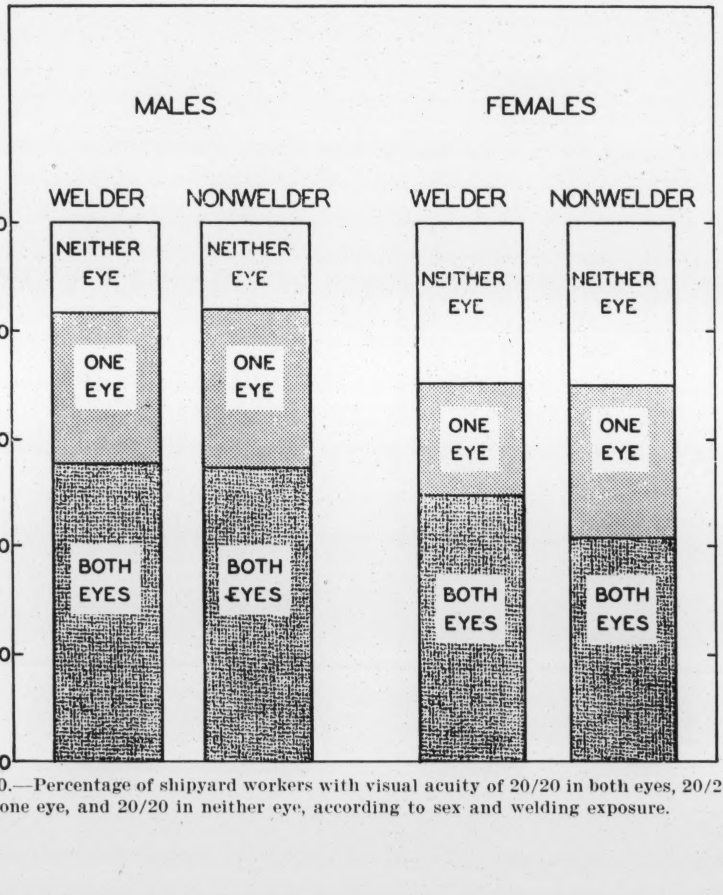


FIGURE 20.—Percentage of shipyard workers with visual acuity of 20/20 in both eyes, 20/20 in one eye, and 20/20 in neither eye, according to sex and welding exposure.

had 20/20 vision in one eye only, while 4.7 and 3.7 percent, respectively, had 20/45 vision or less in both eyes. Among females under 40 years of age welders showed 49.6 percent with 20/20 vision in both eyes as compared with 41.7 percent for nonwelders. Thirty percent of the welders and 30.6 percent of the nonwelders had 20/20 vision in one eye only. Vision of 20/45 or less was 6.1 and 4.2 percent, respectively, for females. Both among welders and nonwelders females have generally poorer vision than males, but occupation makes little difference in the recorded visual ability.

A comparison of the visual acuity of male shipyard workers with certain other male populations is presented in table 20 (*74*, *76*, *78*, *79*). It will be observed that the percentage of shipyard workers with vision of 20/20 in at least one eye does not decline with age as rapidly as in the other populations. Among Farm Security borrowers this can be explained by the fact that nonworkers are included, but the other populations include only employed persons. The shipyard workers received the Keystone test while the other groups took the Snellen test. However, this should not greatly affect the percentage with normal vision in at least one eye. On the whole, the poorest vision was found among the 10,000 industrial workers who were examined approximately 25 years ago. Even taking into consideration the occupational distribution of this group it does appear that some improvement in the vision of the industrial population has occurred during the last two decades.

TABLE 20.—*Percentage of males with visual acuity of 20/20 in at least one eye for shipyard workers and other populations, by age*

Age in years	Shipyard workers	Farm Security workers	Truck drivers	Felt hat workers	10,000 industrial workers
Under 30	82	88	72	78	68
30–39	83	81	71	65	64
40–49	80	69	[1] 58	54	56
50 years or over	65	16	----------	28	24

[1] Includes males 40 years of age or over.

Among all age groups the shipyard workers had better vision than the other populations with the sole exception of Farm Security borrowers under 30 years of age. It should be noted that the former group were examined with glasses if worn at work while the latter group were examined unassisted. Possibly because of the more thorough screening of younger men for service in the armed forces the male shipyard workers show better vision 30–39 years of age than those under 30 years of age. This trend was not observed in any of the other population groups.

SKIN

Welding-slag burns or scars

Welding-slag burns or scars were observed only among welders or ex welders. None was noted in nonwelders. When present they are essentially marks of the trade or occupational stigmata and have significance for identification purposes (*80*). They were not consistently reported by all examiners, but one examiner, who made a special effort to observe their presence or absence, noted them on 182 welders, or 25 percent of the 718 welders he examined. There was no sex difference as 8.4 percent of male welders and 8.9 percent of female welders examined during the survey by all examiners were found to have scars or burns caused by hot slag. The percentage (9.8) of colored males was slightly higher than that for white males (8.2). Of a total of 278 welders having slag burns or scars 167, or 60.1 percent, were males and 111, or 39.9 percent, were females.

The slag burns or scars were most commonly observed on the anterolateral aspect of the elbow. Right-handed welders showed the lesions on the left arm and left-handed welders showed them on the right arm. Predilection for the site just lateral to the cubital fossa became increasingly evident with the progress of the investigation, as the arms of workers were being prepared for venipuncture. A recent burn occasionally made it necessary to choose the other arm for this purpose. Other common sites for these injuries were around the ankles, along the belt line of the abdomen and the episternal region.

The scars on the anterolateral aspect of the elbow were usually multiple, numbering 15 or more and were frequently coalescent. Not uncommonly all grades of inflammatory reaction, from burn to scar, were observed in the same individual. The individual scars at the elbow were usually 5 mm. in diameter, varying from 3 to 10 mm. Single scars were more frequent at other sites and they measured as much as 20 mm. in diameter.

The burns, which were observed, were most commonly in a stage of indolent ulceration with each lesion usually showing a dirty granulating base. A recent small burn frequently presented a doughnut appearance as the lesion was a ring of vesiculation enclosing a tiny area of seared skin. It was surprising to see how infrequently dressings were applied and this observation tends to indicate that severe secondary infection rarely ensues.

The presence of slag burns or scars of the skin over the cubital fossa and lateral thereto almost always assures the physician that the person is an accomplished welder because they were most frequently observed in operators performing overhead welding. This limits the proportion of welders showing these minor injuries as only the most experienced welders perform overhead welding on a production basis. It is possible that a slightly higher percentage of burns or scars would have been found if the total surface of the body had been inspected.

Protective clothing

The leather welding jacket will ordinarily protect the welder from burns of the arm, yet with repeated burning of the sleeve of the jacket the material becomes so worn that the jacket no longer provides adequate protection. Some victims also asserted they sustained burns even though the leather sleeve was not perforated. In other words, during the burning of an electrode and while doing overhead welding, hot slag and metal sparks fall down from the arc onto the welder's arm which is supporting the "stinger" hand. The hot slag or metal accumulates in the folds of the welder's jacket sleeve and the heat given off from a fairly large mass of hot slag metal is then conducted through the leather in sufficient quantity and intensity to produce a second degree burn. Welding without "leathers" is another factor conducive to these lesions; this practice tends to be more frequent in certain Southern shipyards especially during hot summer months. No significant difference, however, in prevalence of burns was observed between shipyards. This lack of difference also suggests that welding galvanized steel, which reportedly creates more "splattering" of the arc, is not accompanied by a higher incidence of burns. Welding without leathers especially on galvanized metal does tend to produce injury over a more extensive skin area.

To prevent or reduce these injuries, it would seem that the leather jackets should be worn and they should be rendered fireproof at those sites where hot slag or metal tends to burn through. This could probably be accomplished by a snap-on patch of fireproof fabric such as asbestos which could be replaced when necessary. Adequate safety education and the utilization of proper safety clothing are also necessary. Such measures should aid materially in preventing burns at other sites as around the ankles. Several women trainees had their first experience with hot metal around ankles when trying to weld wearing low shoes (*1*).

Other dermatoses

Among the other dermatoses observed were acne vulgaris, miliaria, herpes, styes, seborrhea, psoriasis, urticaria, tinea versicolor, ichthyosis, folliculitis, vitiligo, lipomata, insect bites and furunculosis. Acne vulgaris was the most common of this group, being observed in 82 welders (2.5 percent) and 29 nonwelders (2.9 percent). Forty-seven male welders (2.7 percent) and 10 male nonwelders (1.7 percent) showed miliaria, or heat rash. Fifteen women welders also had miliaria though these lesions were not observed among female nonwelders. Fifty-one of the 62 cases of miliaria among welders were found in one Southern yard visited during an extremely hot spell in July. Similarly, 8 of the 10 cases among nonwelders were in this same yard. The wearing of leathers probably accounts for the slightly higher rate among welders.

Seborrhea (7 cases), herpes zoster (4 cases), tinea (14 cases) and styes (hordeolum) (3 cases) were observed only among welders. Psoriasis occurred with about the same frequency among welders and nonwelders, as seven welders and five nonwelders were given this diagnosis.

EYES, EARS, NOSE AND THROAT

Many minor respiratory afflictions may become temporarily disabling especially if such complications as tonsillitis or pneumonia occur. These diseases and related conditions are well-known causative agents of sickness absenteeism among other industrial workers and there is no reason to feel that shipyard workers should escape such afflictions. The incidence of respiratory diseases was fairly high among industrial workers during the year of the study (1944). Gafafer (*81*) in a recent report compared the occurrence of sickness absenteeism lasting eight consecutive calendar days or longer by cause for the year 1944 with the experience of the past decade. The male rate for all causes in 1944 was 37 percent above the mean. Since 1938 the sick absence rate has risen steadily for both males and females. Most of the increase is due to respiratory diseases. Although the peak for these diseases was reached in 1943 when an epidemic occurred in the fourth quarter, still the respiratory rate for 1944 exceeded the mean rate for the 10-year period by 41 percent for males and 29 percent for females.

The upper respiratory tract takes the brunt of the opening attack of any noxious gas or fume inhaled by a worker either in his industrial workplace or elsewhere (*25*, *82*). It is known that welding fumes contain such irritants as nitrogen oxide, and various metallic oxides (see p. 17). Fluorides as irritants are of minor importance because stainless steel welding was carried out to only a very limited extent in the shipyards studied. It is, moreover, difficult to appraise the significance of the resulting chemical conjunctivitis, rhinitis, sinusitis or pharyngitis because many elements of the population will be concurrently suffering from clinically similar afflictions either on an infectious or allergic basis (*83*). Hence, a comparison of the occurrence rate and severity of upper respiratory inflammatory processes, disregarding etiology, among welders and nonwelders should provide information on the absence or presence of the effect of welding fumes.

Condition of eyes

Conjunctivitis was slightly more prevalent among welders than nonwelders. It was observed in 374, or 18.8 percent, of male welders and in 107, or 17.1 percent, of male nonwelders. The rates for omen were lower but again showed the welders as having a higher ate than nonwelders. One hundred and thirty-six, or 11.0 percent, f the female welders had inflamed eyes in comparison with 32, or .5 percent, of the female nonwelders. When viewed as to type of hip being constructed, workers on naval vessels showed a slightly higher proportion of conjunctivitis than those employed on Maritime vessels. The degree of irritation or inflammation would in most cases be rated clinically as mild. It did not interfere with performance of usual shipyard duties. The almost identical prevalence of eye irritation among welders and nonwelders suggests a broad etiologic basis (*84*) common to both groups.

Flashed eyes, or acute photo-ophthalmias, were noted so infrequently that they could not account for the difference between the prevalence of all forms of conjunctivitis in welders and nonwelders. Only twenty-three male and seven female welders, and one male and two female nonwelders, were noted as having this condition. These are included in the above figures for conjunctivitis. All stages of photo-ophthalmia, from incipiency to recovery, were observed depending upon the amount of time which had elapsed between injury and examination. Those individuals observed in the most acute phases had all the classical signs of conjunctivitis such as pain, lacrimation, photophobia and even edema of the lids. Apparently fears of workers concerning a permanent effect on vision had considerably abated by the time these field observations were made, and amply justify the stand of ophthalmologists (*85*) that "exposures which actually occur in welding never damage permanently the deeper structures of the eye." Moreover, most workers realized that adequate eye protection prevented "flash" and they had learned from experience which precautions were necessary.

Inasmuch as conjunctivitis was ordinarily mild and it occurred with about the same frequency in exposed and nonexposed personnel, it would seem that inflamed, or "bloodshot", eyes could not be due solely to occupational factors.

The United States Public Health Service in its study of 10,000 male industrial workers (1926) noted inflamed eyes in 12 percent of subjects examined, there being, however, a slight age trend as 7.1 percent of the workers less than 20 years and 17.5 percent of those in the 45–49 year age-group showed this abnormality. In an investigation of Utah coal and metal miners (*72*, *73*) conjunctival injection was present among 20.1 percent of the coal miners and 20.8 percent of the metal miners. More than half of interstate truck drivers (*74*) had "bloodshot" eyes, this high frequency being attributed to unfavorable working environmental factors. A like high prevalence (50 percent) of inflamed eyes, or conjunctival irritation, was observed among apple orchardists in the Pacific northwest.

The percentage of welders with bloodshot eyes in shipyards A, B, C, D, E, G, and H were respectively 16.9, 13.5, 17.7, 17.0, 16.0, 24.1 and 8.9, whereas the corresponding rates for nonwelders were 9.3, 4.7, 16.4, 15.3, 22.9, 20.7 and 10.9. Thus the welder rate exceeds the nonwelder rate in yards A, B, C, D, and G. Proceeding from shipyard A through to shipyard H represents a change in season from spring, through summer and autumn, to early winter. When rates go up for both welders and nonwelders the change in eye condition seems to be related to season and concomitant factors such as the prevalence of hay fever and the common cold. In yard H, where shops are enclosed because of frequent inclement weather, there is a greater opportunity for exposure of nonwelding personnel to the smoke and fumes of various manufacturing processes. This may account for the lack of significant differences between welders and nonwelders in regard to eye findings particularly in this yard.

Pterygia were observed on the eyes of 54 persons. This abnormality was much more frequent in men than in women as it was observed in only four women. An old explanation for this redundant growth of the conjunctiva has been exposure to wind and weather or similar factors. From the viewpoint of occupation it is noted that 32 white male welders (1.8 percent) and 8 white male nonwelders (1.4 percent) show this defect. Three women welders and one female nonwelder showing this defect yield rates of 0.2 and 0.3, respectively. Of the colored male welders 5 (2.2 percent) had pterygia. Borsook, Alpert and Keighley (*86*) observed 34 cases (2.9 percent) of pterygia in their investigation of nutritional status of aircraft workers in southern California and present this finding as related to vitamin A deficiency. Their study was limited to male workers and included many from those sections of the country where pterygium is relatively more prevalent. The number of cases of pterygia observed by shipyard, excluding 5 males with mixed exposure, is as follows: A, 6; B, 7; C, 11; D, 13; E, 9; and G, 3.

Other eye conditions observed were 44 instances of arcus senilis, 26 of strabismus, 22 of corneal opacity, 11 of cataract and 2 of nystagmus. Arcus senilis was observed only in males of whom 21 were welders, 17 nonwelders, and 6 were in the mixed exposure group. Strabismus was observed in 13 welders, 10 nonwelders and 3 in the mixed exposure group. While occurring with expected frequency in males and females, it was not observed in colored workers. Corneal opacity, or cloudy cornea, was present in nine male welders, seven male nonwelders and one female welder. There were, in addition, five males ith mixed exposures having this condition. A racial difference was pparent as 2.7 percent (8) of the colored males and only 0.5 perent (13) of the white males were affected. These include three white nd two colored males with mixed exposures. The cataracts were noted nly in males: five welders, three nonwelders and three with mixed xposures. Nystagmus was noted only in two male nonwelders.

Condition of ears

It was not practicable to include audiometric studies in this investigation, but based on history and indirect evidence 128 shipyard workers (2.8 percent) were regarded as having impaired hearing.

Perforations of the ear drum or tympanic membrane (membrana tympani) were observed by otoscopy. On comparing the frequency of its occurrence in welders and nonwelders, it is found that 33 white male welders and 7 white male nonwelders had perforations. In view of the fact that welders selected for study outnumbered nonwelders three to one, only a slight excess of perforations is present among the welder group.

Beads of metal or slag were not infrequently seen in the external auditory canal. It is reported that sometimes hot slag or molten weld-metal may penetrate the external auditory canal burning and perforating the drum membrane (*87*). For this reason, the past medical records of the 40 white men showing perforations of drum membrane were checked to determine whether this was the cause of the slightly higher frequency among welders. This clinical check, however, revealed only one man whose perforation was listed as being due to hot slag or metal. The majority dated back to an attack of acute suppurative otitis media in childhood. Many were men of military age who had been excluded from military service because of this and associated ear defects.

It is a rather common practice for the welder doing certain types of position welding (overhead) to plug his ears with cotton to prevent hot slag or metal sparks from entering the external auditory canal. Sometimes ear defenders, or wardens, are used which serve the dual purpose of reducing noise exposure and protecting the canal, drum, and middle ear from hot slag or hot metal injury.

Condition of the nose

During the examination of the nose, the degree of mucous membrane inflammation was noted as well as evidence of nasal obstruction, enlarged turbinates, and deviation or perforation of the nasal septum.

Deviation of the nasal septum was observed with the same frequency among welders and nonwelders, 19.4 percent of each group showing this abnormality. As it is a structural impairment (*88*) no difference attributable to exposure is to be expected. Septal deviations were more prevalent among males than among females.

Enlarged turbinates were observed with a slightly higher frequency than deviated septums and a slight difference in frequency of occurrence among welders and nonwelders was discernible. This abnormality was noted in 695, or 21.6 percent, of the welders and in 171, or 17.2 percent, of the nonwelders. As would be expected, deviated septum and enlarged turbinates were frequently present in the same individual.

Perforations of the nasal septum were observed in 9 workers; 5 among 3,215 welders (0.2 percent) and 4 among 996 nonwelders (0.4 percent). On checking the past medical record of these individuals, it was found that most of the perforations represented the sequelae of nasal operations. In only one case was there a possible occupational connection and in this instance the perforation was not attributable to welding but to exposure to acid fumes in a storage battery factory. It is of interest, perhaps, that none was observed in colored personnel.

Inflammation of the nasal mucous membrane as evidenced by congestion was slightly more frequent among welders than among nonwelders, but the difference was probably not significant. Of the 3,213 welders, 596, or 18.5 percent, were positive for this finding in comparison to the 141, or 14.2 percent, of 995 nonwelders. The rates for white male, colored male, and white female welders were 22.2, 18.1 and 13.5 percent, respectively, whereas the rates for white male, colored male, and white female nonwelders were 17.2, 15.6 and 9.3 percent, respectively. In each shipyard nasal mucous membrane congestion was more common among welders. The degree of inflammation rarely progressed to ulceration. It was observed in 0.4 percent of the welders and 0.3 percent of the nonwelders.

Condition of throat

The throat of each shipyard worker was inspected with the aid of a wooden tongue depressor and flashlight. The degree of inflammation was evaluated by noting particularly the presence or absence of lymphoid hyperplasia on the posterior pharyngeal wall, an increase in size of blood vessels among lymphoid nodules, vascular congestion of tonsillar pillar edges and mucoid, purulent or inspissated discharge on the pharyngeal wall (*89*).

Pharyngitis was graded into 3 degrees of severity; slight, moderate and severe. It was manifested by inflamed lymphoid nodules on the posterior pharyngeal wall and in the more severe degrees of vascular congestion, wider area of involvement and mucopus were also present. In the severe cases there was also usually a positive history of inusitis, i.e. post-nasal drip and cough. Of the 1,002 nonwelders, 274, or 27.3 percent, had slight; 133, or 13.3 percent, had moderate, and 33 or 3.3 percent had severe pharyngitis. On the other hand, among 3,223 welders, the corresponding figures were 754, or 23.4 percent, 628, or 19.5 percent and 159, or 4.9 percent. This finding suggests that pharyngitis observed among welders tends to be more severe than that of nonwelders.

Cases showing moderate and severe degrees of throat irritation were next combined and resulting rates for welders and nonwelders were compared. This comparison of the severer grades shows a marked difference which is statistically significant.

Segregating white male welders on the basis of present shipyard occupation into light and all other welding exposure and comparing them with white male nonwelders, (table 21) yielded a rate of 21.1 percent for white male nonwelders and rates of 28.9 and 30.3 per-

TABLE 21.—*Number and percent of shipyard workers with pharyngeal findings according to sex and color, by welding exposure*

Pharyngeal findings	Number				Percent			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
	NO WELDING EXPOSURE (NONWELDERS)							
Total	1,002	578	46	378	100.0	100.0	100.0	100.0
Normal	562	284	24	254	56.1	49.1	52.2	67.2
Slight	274	172	13	89	27.3	29.8	28.3	23.5
Moderate	133	102	7	24	13.3	17.6	15.2	6.4
Severe	33	20	2	11	3.3	3.5	4.3	2.9
	LIGHT WELDING EXPOSURE (WELDERS)							
Total	1,199	585	43	571	100.0	100.0	100.0	100.0
Normal	628	254	21	353	52.4	43.4	48.8	61.8
Slight	305	162	5	138	25.4	27.7	11.6	24.2
Moderate	214	135	10	69	17.9	23.1	23.3	12.1
Severe	52	34	7	11	4.3	5.8	16.3	1.9
	OTHER WELDING EXPOSURE (WELDERS)							
Total	2,024	1,168	189	667	100.0	100.0	100.0	100.0
Normal	1,054	519	97	438	52.1	44.4	51.3	65.7
Slight	449	295	36	118	22.2	25.3	19.1	17.7
Moderate	414	280	41	93	20.4	24.0	21.7	13.9
Severe	107	74	15	18	5.3	6.3	7.9	2.7

cent for welders having respectively a light or all other fume exposure. The male nonwelders' rate in various yards ranged from 17.2 to 25.4 percent, while the lightly exposed welders' rate in the various yards ranged from 17.9 to 40.1, and all other exposed welders' rate ranged from 17.6 to 40.5.

Pharyngitis was less frequent among females than males. Moderate and severe degrees of pharyngitis were observed in 9.2 percent of female nonwelders in contrast to 14.0 and 16.6 percent of female welders having a light and other welding fume exposure, respectively. Inasmuch as fewer women use tobacco, and generally to a lesser extent than men, the use of tobacco might contribute materially to the difference between the occurrence rate of men and women.

The prevalence of nasal congestion, pharyngitis (moderate and severe) and upper-respiratory symptoms among tobacco users and nonusers was next determined, noting particularly the rates for males and females and whether or not they were welders or nonwelders. Among male welders not using tobacco 19.5 percent had nasal congestion, 25.3 percent had pharyngitis (moderate and severe) and 22.9 percent complained of upper-respiratory symptoms, but among male welders using tobacco 22.3 percent had nasal congestion, 31.2 percent had pharyngitis and 38.1 percent had upper-respiratory symptoms. The welder-nonwelder ratio for nasal congestion, pharyngitis and upper-respiratory symptoms was 1.10, 1.06, and 1.17, respectively, for nontobacco users, but 1.39, 1.48, and 1.51, respectively, for tobacco users. These results on male workers thus show that there is an excess of upper-respiratory disease among welders and that the excess is even greater when the welder uses tobacco. The findings on women show a proportionately greater difference between welders and nonwelders and seem to suggest that tobacco is less important than welding among them in provoking upper-respiratory irritation. The welder-nonwelder ratio for nasal congestion, pharyngitis and upper-respiratory symptoms among women was 1.10, 1.91 and 1.95, respectively, for nontobacco users and 1.56, 1.48 and 1.40, respectively for tobacco users. The prevalence of these signs of upper-respiratory irritation among nonwelders may, in the broadest sense, be regarded as due to concurrent factors chiefly on an infectious basis. These data also seem to suggest that tobacco plays a minor contributory role and tends to confirm the history of some welders that discontinuing smoking often alleviates or at least diminishes irksome symptoms such as cough.

On viewing the nose and throat findings as a whole, it appears that in some instances the same factors are operative in both the welder and nonwelder groups. Defects that are structural, such as deviation of the nasal septum, occur with the same frequency in the two groups. Inflammatory changes due to infectious or allergic agents probably affect both groups alike, although welders show a higher prevalence of nasal congestion and pharyngitis than do nonwelders. This excess is interpreted as due to welding fume and other exposures of welders.

The slight difference in signs of pharyngitis and rhinitis between welders and nonwelders and the infrequent finding of nasal ulceration and perforation indicate that the local effect of welding fume on the tissues at the portal of entry into the body is of little or no significance.

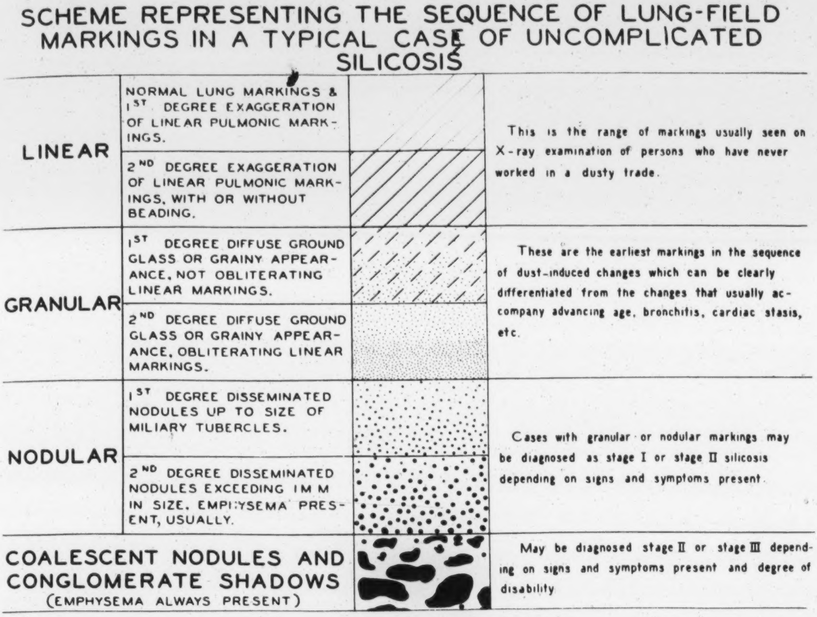
LUNG-FIELD MARKINGS IN CHEST X-RAY FILMS

History of pulmonic changes in welders

Abnormal lung-field markings occurring after prolonged exposure to welding fumes were first reported by Doig and McLaughlin in 1936 (*21*). They described the X-ray appearance as a fine nodulation and suggested that as the abnormal markings occurred in arc welders using coated electrodes, they might be due to a modified asbestosis, a modified reaction to silica, to nitrous gases or to iron deposition. Much more enlightenment on the cause of the markings was contained in the Enzer and Sander (*22*) report of 1938 which included the antemortem and postmortem findings of an arc welder who died of pneumonia following an industrial injury. This man had worked with both bare and coated electrodes. Most of his heavy exposure (i.e., confined space work), however, had been performed with bare electrodes. The chest roentgenogram about 1 year before death showed "fine nodulations uniformly distributed in both lungs, none larger than 2 mm. . . . Trunk shadows exaggerated throughout. No conglomeration and no calcifications." Pathologic and chemical study of the lungs of this case revealed perivascular and peribronchial iron pigment but the pigment did not provoke any fibrotic reactive phenomenon. In the authors' opinion there was sufficient evidence to conclude that "X-ray appearances of nodules may result from the deposition of iron in the perivascular lymphatics." The shadows seen in the other nine welders, on whom they report, were also regarded as being due to particulate iron of "siderosis" collections within the pulmonary lymphatics. Other authors have reported similar X-ray appearances (*3*, *41*, *42*, *43*). The characteristic marking which makes its appearance after 5 to 10 years (*37*), is called "welder's siderosis" by Groh (*90*).

Classification of chest roentgenograms

Inasmuch as the radiologic appearances of welders' lungs, particularly in the nodular phase, are indistinguishable from those of the more common pneumoconioses, the plan here followed of classifying the chest X-ray films is the same as that used in investigations of workers in other dusty trades (*72*, *73*, *91*). According to this scheme, the films were classified as showing normal pulmonic markings, first or second degree exaggeration of linear pulmonic markgs, first or second degree ground glass, first or second degree nodular arkings, or showing complications such as reinfection tuberculosis ig. 21). Massive shadows, or conglomerations, were not seen except individuals who had hard-rock-mining experience. A granular, r reticulated, pattern was more commonly encountered than nodula ion, and nodulation was the maximal degree of involvement en- ountered. The departure from the broad range of healthy chest



SCHEME REPRESENTING THE SEQUENCE OF LUNG-FIELD MARKINGS IN A TYPICAL CASE OF UNCOMPLICATED SILICOSIS

LINEAR	NORMAL LUNG MARKINGS & 1ST DEGREE EXAGGERATION OF LINEAR PULMONIC MARKINGS.	▨	This is the range of markings usually seen on X-ray examination of persons who have never worked in a dusty trade.
	2ND DEGREE EXAGGERATION OF LINEAR PULMONIC MARKINGS, WITH OR WITHOUT BEADING.	▨	
GRANULAR	1ST DEGREE DIFFUSE GROUND GLASS OR GRAINY APPEARANCE, NOT OBLITERATING LINEAR MARKINGS.	▨	These are the earliest markings in the sequence of dust-induced changes which can be clearly differentiated from the changes that usually accompany advancing age, bronchitis, cardiac stasis, etc.
	2ND DEGREE DIFFUSE GROUND GLASS OR GRAINY APPEARANCE, OBLITERATING LINEAR MARKINGS.	░	
NODULAR	1ST DEGREE DISSEMINATED NODULES UP TO SIZE OF MILIARY TUBERCLES.	⁘	Cases with granular or nodular markings may be diagnosed as stage I or stage II silicosis depending on signs and symptoms present.
	2ND DEGREE DISSEMINATED NODULES EXCEEDING 1 MM IN SIZE. EMPHYSEMA PRESENT, USUALLY.	●	
COALESCENT NODULES AND CONGLOMERATE SHADOWS (EMPHYSEMA ALWAYS PRESENT)		■	May be diagnosed stage II or stage III depending on signs and symptoms present and degree of disability

FIGURE 21.—Scheme representing the sequence of lung-field markings in a typical case of uncomplicated silicosis.

markings was so minor that little difference in abnormal markings is demonstrable on comparing welders with nonwelders (fig. 22, 23, 24, 25, 26, 27).

In the present investigation all chest roentgenograms were read without knowledge of previous work history. Care has been taken to see that nonwelders represent a good control group especially for the purpose of comparing radiographic findings. All men or women whose work history indicated employment in dusty trades were placed in a mixed exposure group (see p. 78).

Exaggerated chest markings

Table 22 shows in summary the character of lung-field markings observed. On comparing findings for males and females, excluding the mixed exposure group, it is noted that a higher proportion of men (36.1 percent) showed exaggerated markings than did women (17.3 percent). This sex difference was even greater among persons placed in the mixed exposure group, 47.4 percent for men compared with 21.9 percent for women.

The sex difference merely seems to indicate a higher degree of industrialization of men. Table 22 also shows that the proportion of welders showing second degree linear and granular markings is about the same as that observed in the nonwelder group. In other words, there is only a slight difference which might be attributable to welding exposures, and confirms Sander's (*37*) and Groh's (*90*) observations that ordinarily 6 to 10 years are required before diagnosable roentgenographic changes occur.

TABLE 22.—*Type of lung-field marking observed in the chest roentgenograms of shipyard workers, by sex and welding exposure*[1]

Type of lung-field marking	Males			Females			Mixed exposures	
	Total	Welders	Non-welders	Total	Welders	Non-welders	Males	Females
	NUMBER							
Total	2,563	1,955	608	1,598	1,228	370	329	73
Normal	1,638	1,249	389	1,322	1,031	291	173	57
First degree linear	686	533	153	242	175	67	83	16
Second degree linear	142	109	33	16	12	4	38	0
First and second degree granular	57	45	12	2	2	0	29	0
Tuberculous	40	19	21	16	8	8	6	0
	PERCENT							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Normal	63.9	63.9	64.0	82.7	84.0	78.6	52.6	78.1
First degree linear	26.8	27.2	25.2	15.2	14.2	18.1	25.2	21.9
Second degree linear	5.5	5.6	5.4	1.0	1.0	1.1	11.6	0
First and second degree granular	2.2	2.3	2.0	.1	.2	0	8.8	0
Tuberculous	1.6	1.0	3.4	1.0	.6	2.2	1.8	0

[1] Mixed exposure group includes shipyard officials, burners, and certain other occupations in addition to worker who gave a history of significant siliceous dust exposure.

The previous occupation of the workers has some influence in determining the type of lung-field markings that will be observed in the X-ray film. For convenience in comparison, workers with ground glass (or granular) and linear two lung-field markings are combined. In the case of male welders and nonwelders 7.9 and 7.4 percent, respectively, have this degree of change (table 22). The percentage of white male welders showing L2 and GG markings according to previous occupation is as follows: no previous employment, 2.2; agricultural employment only, 7.3; agriculture and trades, 7.9;

all other, 9.8. This shows the effect of industrialization which is also apparent on comparing the prevalence of exaggerated chest markings in men with that in women.

The aging process is known to cause an increase in pulmonic markings (*92*, *93*). It was found that the percentage of male welders and nonwelders having linear two and granular lung-field markings, by various age classifications, is as follows:

15 to 24 years—welders 2.6 percent; nonwelders 1.4 percent.
25 to 34 years—welders 8.4 percent; nonwelders 5.3 percent.
35 to 44 years—welders 9.9 percent; nonwelders 6.3 percent.
45 and over —welders 9.9 percent; nonwelders 11.5 percent.

The higher percentage of male nonwelders, 45 years of age or over, with exaggerated lung-field markings is probably due to the greater number of nonwelders in the upper ranges of this age group. Only 8.1 percent of male welders, as compared to 38.0 percent of male nonwelders, are 45 years of age or over. The comparison was not carried beyond this age group because of the small number of welders. A slightly larger percentage of exaggerated markings is found among male welders under 44 years, which may be due to welding fumes.

The percentages of male welders showing exaggerated lung-field markings (2d degree linear or more) who had had no industrial experience, is given as follows for four welding periods: less than 10 months, 5.3; 10–19 months, 5.4; 20–29 months, 6.2; and for 30 months or over, 11.0. Welders with exaggerated markings who had previously engaged in industrial work, had 5.9, 7.6, 10.6 and 12.3 percent, respectively.

SELECTED CASE HISTORIES

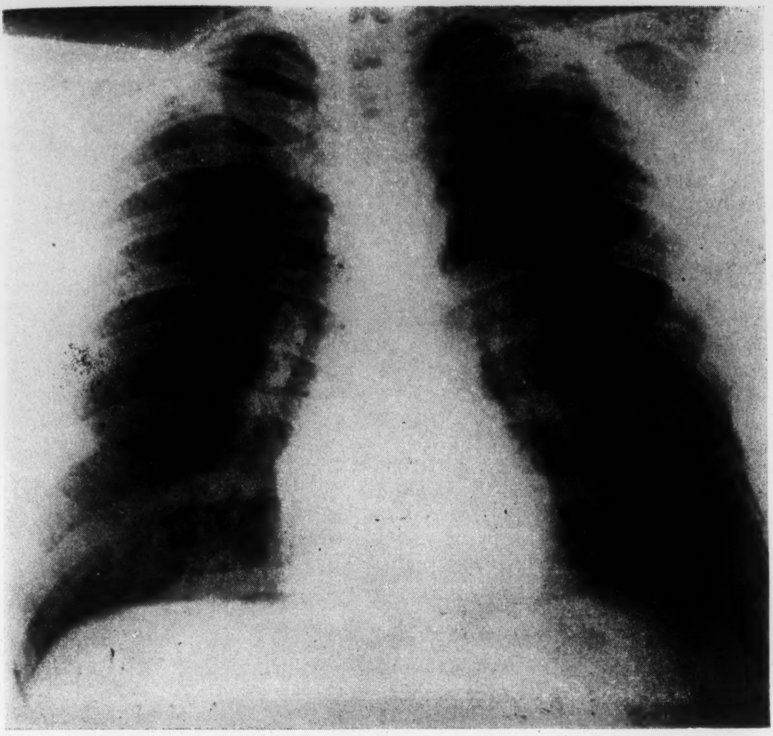


FIGURE 22.—Arc welder's siderosis. "CAIB," white male, age 31.

Occupational history.—First class production arc welder, mainly on black iron, at this shipyard, 3 years. Previous occupations, shipyard arc welder (zinc exposure), 1½ years; repairman and welder (garage), 7 years; farmer and woodsman, 5 years.

Estimated fume exposure.—Moderately heavy; worked in confined space about half time with blowers supplementing ventilation part of the time.

Past medical.—Had severe zinc chills several times, but only mildly at this shipyard; last significant attack 4 years ago.

Complaints.—Blood streaked sputum.

Physical examination.—Time: 1020 hour. Height, 69 inches; weight, 194 pounds. Temperature, 36.5° C. Pulse rate, 96 per minute. Blood pressure, 135/80. Nasal mucous membrane congested. Tonsils—small, submerged. Pharynx moderately red and congested with vascular congestion of edges of tonsillar pillars.

Laboratory.—Urinalysis negative. Hematocrit, 49. Hemoglobin, 15.4 gms. Corrected RBC sedimentation rate (Wintrobe), 7.

X-ray.—Shows that a 2° granular or reticular appearance of both lung fields is the predominant characteristic. Through this background evidence of nodulation is making its appearance. This type of change was maximal roentgenologic change noted in welders.

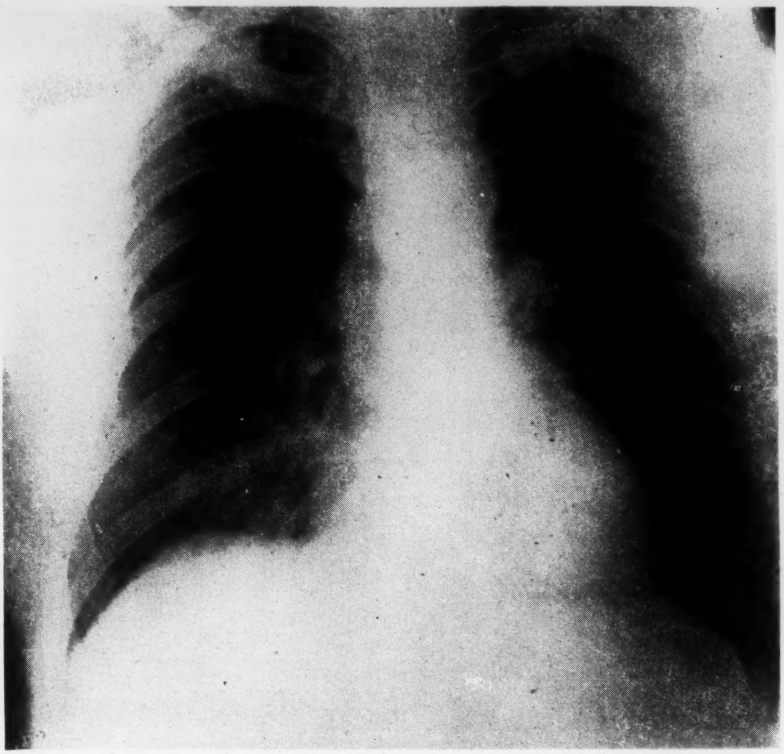


FIGURE 23.—Arc welder's siderosis. "CSBX," white male, age 32.

Occupational history.—First class production arc welder on black iron (flats), 38 months. Up until 8 months ago did considerable overhead welding. Formerly employed as baker, 17 years.

Estimated fume exposure.—Moderate. Using 15 pounds of 3/16 inch coated electrodes per day.

Habits.—Heavy cigarette and pipe smoker and moderately heavy user of alcoholic beverages.

Past medical.—Contusion of right hip, shipyard accident, May 1944; hospitalized 14 days, off work 2 weeks. Never had "galvo."

Complaints.—(a) Productive morning cough. (b) blood streaked sputum 7 months ago.

Physical examination.—Time: 1015 hour. Height, 69 inches; weight, 190 pounds. Temperature, 36.8° C. Resting pulse rate, 72 per minute. Blood pressure, 132/70. Conjunctiva and nasal mucous membrane congested. Marked redness and congestion of pharynx with vascular congestion of tonsillar pillars.

Laboratory.—Urinalysis negative. Hematocrit, 54. Corrected RBC sedimentation rate (Wintrobe), 34. Hemoglobin, 15 gms.

X-ray.—Shows typical granular or beginning pseudo nodulation of this benign pneumoconiosis.

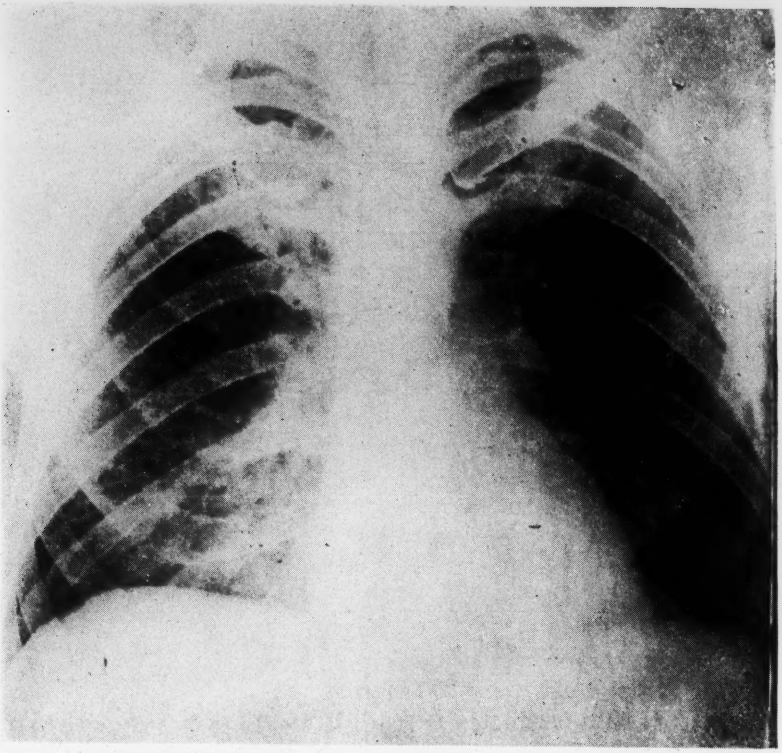


FIGURE 24.—Arc welder's siderosis. "XRHS," white male, age 45.

Occupational history.—First class production welder on ways 6 months, on galv. all time, and on ship assembly 22 months. Previously electrician (appliance manufacturing), 2 years; repairman, 3 years; traveling cement mixer (steel manufacturing), 2 years; grain farmer 10 years; and truck driver, 5 years.

Estimated fume exposure.—Exposed to zinc fumes using about 6 pounds of 5/32 inch coated electrodes per shift. Local exhaust ventilation.

Past medical.—Has had mild attacks of chills and fever, last attack 3 to 4 months ago—lost no time.

Complaints.—(a) Productive cough with accompanying deep chest pain, (b) sore throat, (c) occasional vertigo and nausea and (d) paresthesia in feet.

Physical examination.—Time: 1640 hour. Height, 65 inches; weight, 170 pounds. Temperature, 36.7° C. Pulse rate, 88 per minute. Blood pressure 140/70. Conjunctiva slightly congested. Rather poor oral hygiene. Tonsils small and submerged. Pharynx moderately congested and vascular congestion of tonsillar pillars. Mucoid discharge on pharyngeal wall. Abdomen is tender in hypogastric region and over gall bladder. Liver not palpable.

Laboratory.—Urinalysis negative. Hematocrit 42. Hemoglobin 13.8 grams. Corrected RBC sedimentation rate (Wintrobe), 15.

X-ray.—Shows fine, close-set, reticular lung-field markings classified as 2° granular or ground glass.

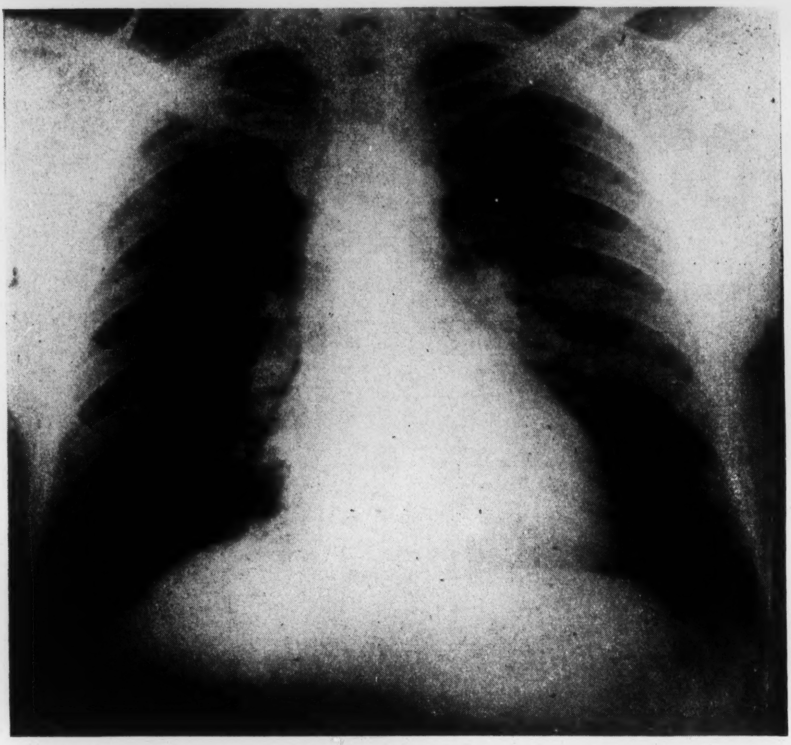


FIGURE 25.—Arc welder's siderosis. "OCSP," white male, age 37.

Occupational history.—Gas and arc pipe welder, 30 months on outfitting docks, about 90 percent of his work is below decks. Previously employed as gas welder in oil fields, 15 years.

Fume exposure.—Exhaust ventilation usually employed while welding galvanized metal. Big blowers also used to improve general ventilation. He uses about 12 pounds of electrodes (size 1/8 inch, 5/32 inch and 7/32 inch) per shift.

Habits.—Heavy smoker and moderately heavy user of alcoholic beverages.

Past medical.—Syphilis—full course of treatment 10 years ago.

Complaints.—(a) Cough, moderately severe, usually at night and productive of "smoky" sputum (b) pain in left chest (c) indigestion (gaseous distress) (d) abdominal pain.

Physical examination.—Time: 2300 hour. Height, 69 inches; weight, 180 pounds. Temperature, 36.8° C. Pulse rate, 74 per minute. Blood pressure, 112/82. Nose and throat essentially negative.

Laboratory.—Urinalysis negative. Serodiagnostic test, positive. Hermatocrit, 44. Hemoglobin, 13.5 gms. Corrected RBC sedimentation rate (Wintrobe), 3.

X-ray.—This plate illustrates that pulmonic markings are less marked than with continuous arc welding. It is of interest to note that although this man has been exposed to welding fumes for 17½ years, the pulmonic markings are minimal.

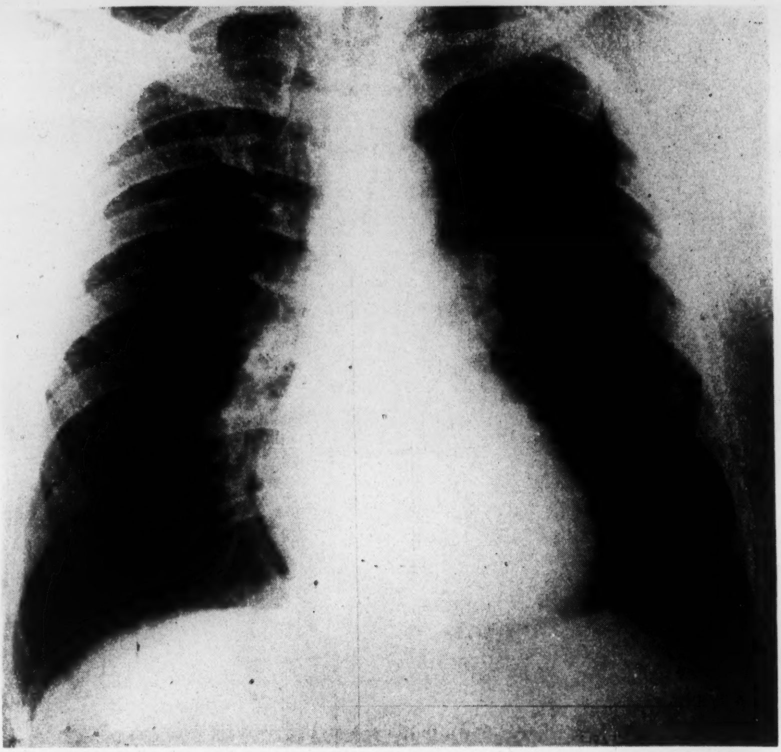


FIGURE 26.—Lung markings simulating arc welder's siderosis. "SBBP," white male, age 32.

Occupational history.—Second class plate welder on shipways, 3 months; and shipyard electrician, 5 months. Previously employed as a cotton mill mechanic, 14 years.

Fume exposure.—Time spent on inner bottom welding estimated as being 2 weeks. He uses 6 or 7 pounds of 3/16 inch electrodes per shift in an environment having general ventilation augmented by fans.

Habits.—Moderately heavy user of cigarettes.

Past medical.—Negative.

Complaints.—(a) Palpitation and (b) dyspnea on exertion; otherwise in good health.

Physical examination.—Time: 1130 hour. Height, 71 inches; weight, 185 pounds. Temperature, 37° C. Visual acuity, 20/20; conjunctiva slightly congested. Resting pulse rate, 100 per minute. Blood pressure, 122/80. Tonsils are enlarged beyond the pillars and pharynx is slightly inflamed. Moderate nasal obstruction with enlarged turbinates, right. Oral hygiene is poor.

Laboratory.—Urinalysis, negative. Hematocrit, 52. Corrected RBC sedimentation rate (Wintrobe), 36.2. Hemoglobin, 14.3 gms.

X-ray.—This plate illustrates the difficulty of making a diagnosis of early arc welder's siderosis simply from a radiographic reading. A number of other cotton mill employees showed such increased markings. In view of this patient's relatively short period of welding under fairly good conditions, it seems more logical to attribute the increased pulmonic markings to byssinosis.

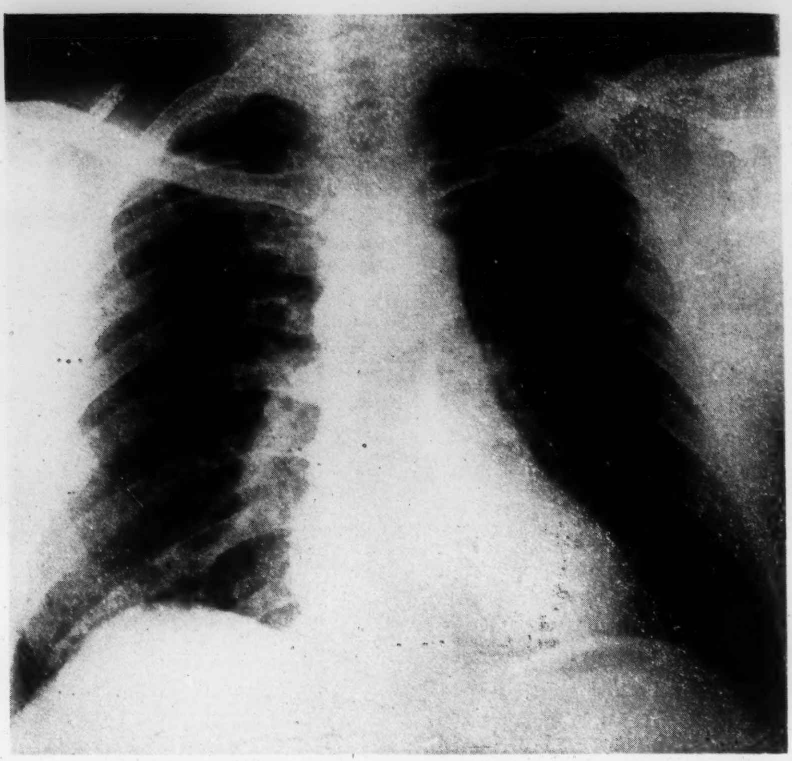


FIGURE 27.—Siderotic pulmonic changes, possibly modified by non-shipyard employment. "CBOA," white male, age 45 years.

Occupational history.—First class production welder (outfitting), 27 months. Previously wetting down (hat factory), 17 years; truck driver, 4 years; longshoreman, ½ year; electrical construction worker, ½ year; engineer, 1 year; and radio operator (Navy) 5 years.

Fume exposure.—He works on light galvanized metal occasionally. Part of his work is performed in rather confined spaces. He uses 10 to 12 pounds of 3/16 inch electrodes per shift.

Habits.—Moderately heavy user of tobacco and alcohol.

Past medical.—Tonsillectomy in his youth.

Complaints.—(a) Short-winded (b) morning cough (c) morning nausea and vomiting (d) rheumatic pains in legs. Has a cold now.

Physical examination.—Time: 1030 hour. Height, 69 inches; weight, 198 pounds. Temperature, 36.7° C. Pulse rate, 84 per minute. Barrel-chested. Blood pressure, 122/75. Conjunctiva slightly congested. Congestion of nasal mucous membrane and nares contain bloody exudate. Pharynx and tonsillar pillars red and congested. Grayish-black mucoid discharge on pharyngeal wall. Deep reflexes decreased.

Laboratory.—Urinalysis negative. Serodiagnostic test, negative. Hematocrit, 48. Hemoglobin, 15 gms. Corrected RBC sedimentation rate (Wintrobe), 15.

X-ray.—This plate reveals bilateral ground-glass pulmonic markings and parenchymal calcium deposits in each apex of the lung. It also illustrates the type of case removed from the welder group because of his varied employment before entering shipyard work. It is felt that the plate reveals changes due to welding but they cannot with certainty be ascribed to this cause. It is noted that hat factory work constituted a large part of his previous employment. Public Health Service observation of hatters, however, has failed to reveal pneumoconiosis among them.

CALCIFIED PULMONARY LESIONS

Previous observations

In studies of the health of workers in dusty trades the effects of siliceous dusts in activating existing lesions of tuberculous etiology is an important consideration. X-ray studies of workers in such industries have revealed pulmonary calcifications, as well as other lesions. In prior investigations by the Public Health Service (see table 23) the presence of pulmonary calcifications was interpreted as primary tuberculosis and reported as such (*72*, *73*, *75*, *91*, *92*, *93*, *94*). In connection with these studies the opinion was formulated that there seemed to be little justification for denying a person employment in such trades on account of calcified pulmonary lesions. This concept was derived from the lack of evidence that the mere presence of calcified lesions in the lungs would endanger the worker's health.

TABLE 23.—*Percentage of male workers with pulmonary calcifications in various trades*

Industrial group	Location	Number of workers examined	Number with calcification	Percent with calcification
Nonferrous metal miners	Utah	719	125	17.4
Smelter workers	Utah	1,391	228	16.4
Pottery workers	West Virginia	2,444	400	16.4
Coal miners	Utah	489	52	10.6
Manganese workers	Eastern Pennsylvania	50	5	10.0
Shipyard workers	Coastal regions of United States	4,563	371	8.1
Pegmatite workers	Western North Carolina	1,138	91	8.0
Asbestos workers	South central North Carolina	336	16	4.8

Beginning about 1938 (*95*, *96*, *97*, *101*, *105*) reports appeared which showed that (1) many persons having hilar or parenchymal calcified lesions in their chests failed to react positively to the tuberculin test; (2) the incidence of pulmonary calcifications varied geographically; (3) pulmonary calcifications occurred at an early age in life and (4) no epidemiologic relations could be shown between pulmonary calcifications and tuberculosis.

More recently Palmer (*98*, *102*) has advanced the hypothesis that infection with *Histoplasma capsulatum* may be the important etiologic factor in such calcifications. This hypothesis is based on his finding of a disproportionately high number of reactors "to histoplasmin" among nurses having pulmonary calcifications. Christie and Peterson have made similar observations (*100*). This hypothesis obviously rests on the assumption that the histoplasmin skin test on humans specifically indicates infection with *Histoplasma capsulatum*. Work of other investigators, however, has shown that the histoplasmin skin test is not a specific reaction (*100*, *103*). It is evident, therefore, that the etiology of pulmonary calcifications remains an unsolved problem, which is then another reason why this type of lesion is reported herein simply as pulmonary calcification using the same criteria (*99*) followed in previous studies, instead of referring to the lesions as healed or healing primary tuberculosis.

Occurrence among shipyard workers

Among 4,563 shipyard workers effectively X-rayed 371, or 8.1 percent, showed pulmonary calcifications. Such lesions were noted in 8.2 percent of the men and 8.0 percent of the women. The prevalence rates by shipyard were as follows: A, 6.1 percent of 444 workers; B, 9.3 percent of 678 workers; C, 10.8 percent of 641 workers; D, 9.2 percent of 880 workers; E, 8.4 percent of 692 workers; G, 7.2 percent of 487 workers; and H, 5.1 percent of 741 workers. Pulmonary calcifications were most common among white males, 8.4 percent, compared with 8.0 percent for white females and 6.7 percent for colored males. By individual shipyards, however, four yards showed white females with higher rates than white males and three yards showed the reverse.

The prevalence of pulmonary calcifications was higher for nonwelders. (10.8 percent) than for welders (7.3 percent) among white males, but the corresponding percentages for colored males and white females were lower for nonwelders, (6.4 compared with 4.4 and 8.4 compared with 5.9, respectively). In all but one shipyard white male nonwelders had higher rates than welders. Among 191 male shipyard workers who had previously engaged in welding, only 10 (5.2 percent) showed pulmonary calcifications.

As noted previously, it is believed that place of birth and residence until reaching the age of industrial employment influences the occurrence of pulmonary calcifications. Assuming that most of the shipyard workers lived near the place where they were born, at least until they reached the age of industrial employment, they were grouped according to birthplace for the purpose of determining the percentage with pulmonary calcifications. As shown in table 24 the prevalence of calcifications was over 14 percent in Tennessee, Missouri, Mississippi, Kansas, Iowa and Illinois. Each of these States was reported as the birthplace of 45 or more workers. In 17 other States the birthplace of a similar number of workers, the prevalence of calcifications ranged from 4 to 14 percent in 12 of them and less than 4 percent in Massachusetts, North Dakota, Florida, Minnesota and New York. These figures agree, in general, with Long and Sterns' observations (*105*) that a region of high prevalence exists in east central United States. The prevalence of 8.7 percent among 92 Europeans included in the study was slightly greater than for all shipyard workers, but that for 84 Canadians (4.8) was lower.

TABLE 24.—*Number and percent of shipyard workers with pulmonary calcifications according to place of birth*

Birthplace	Number of persons examined	Number with calcifications	Percent with calcifications	Birthplace	Number of persons examined	Number with calcifications	Percent with calcifications
Total	4,563[1]	371	8.1				
Tennessee	45	14	31.1	Georgia	310	14	4.5
Missouri	147	35	23.8	New Hampshire	45	2	4.4
Mississippi	211	34	16.1	Nebraska	69	3	4.3
Kansas	95	14	14.7	California	168	7	4.2
Iowa	90	13	14.4	Massachusetts	61	2	3.3
Illinois	56	8	14.3	North Dakota	57	1	1.8
Arkansas	144	20	13.9	Florida	64	1	1.6
Colorado	46	6	13.0	Minnesota	72	1	1.4
Louisiana	266	27	10.2	New York	58	0	0
Oklahoma	246	20	8.1	All other U. S	541	40	7.4
Texas	468	35	7.5	Europe	92	8	8.7
Alabama	448	27	6.0	Canada	84	4	4.8
Washington	116	7	6.0	All other foreign countries.	41	3	7.3
Maine	501	24	4.8				

[1] Number includes persons whose birthplace was not stated.

The regional rates of pulmonary calcifications for shipyard workers according to place of birth are shown in fig. 28. This figure shows regions of relatively low prevalence along the Atlantic and Pacific coasts, a slightly higher prevalence along the Gulf coast and highest rates in the north central States. It is obvious that States and parts of States do have rates much greater or less than a region as a whole.

Interpretation

The prevalence of pulmonary calcification among all shipyard workers (table 23) is relatively low and there does not appear to be much difference between welders and nonwelders in the occurrence of these lesions. Pulmonary tuberculosis may be the etiologic factor in rare instances (p. 120). Although certain dusty trades seem to be associated with relatively high pulmonary calcification rates (table 25), dust exposures alone cannot be charged with a major etiologic influence unless place of birth and childhood are also taken into account. Physicians encountering such lesions in the evaluation of preplacement examinations should not attribute them to tuberculosis unless there are good grounds for doing so after eliminating place of birth and other factors.

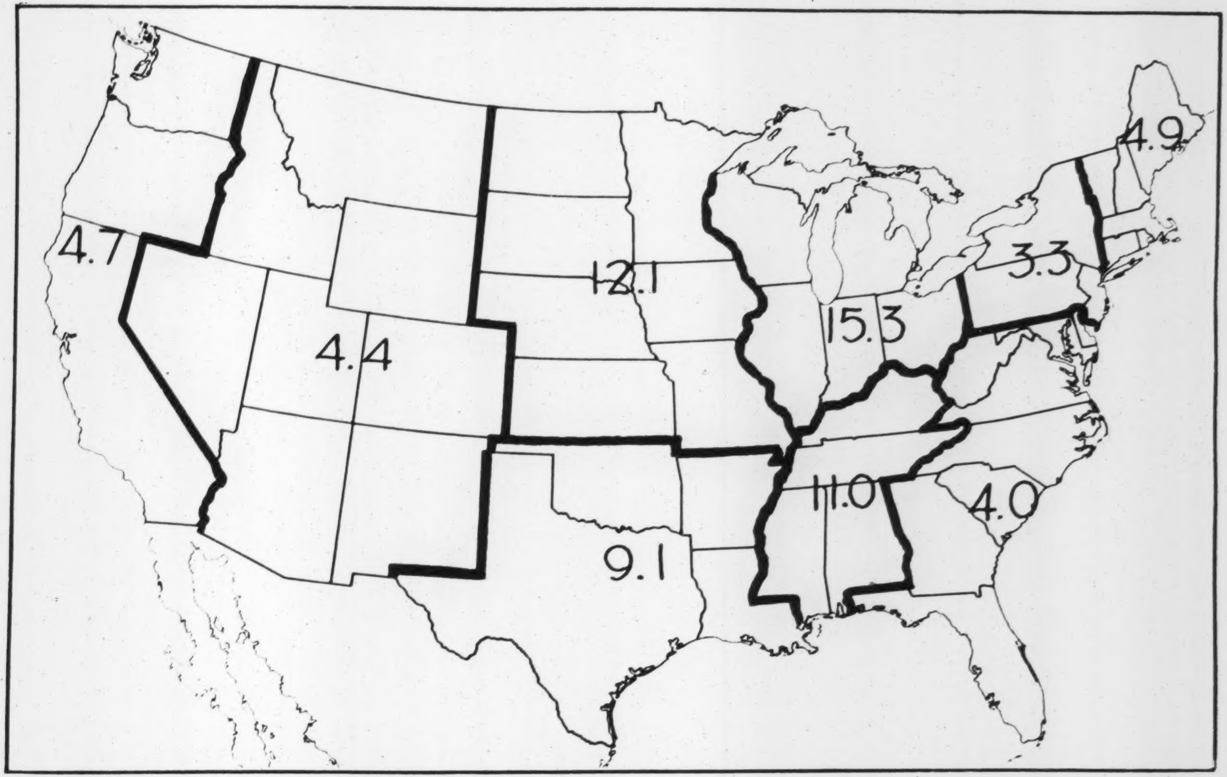

4.7
4.4
12.1
9.1
15.3
11.0
3.3
4.9
4.0

FIGURE 28.—Map of the United States indicating the percentage of shipyard workers showing X-ray evidence of hilar or parenchymal pulmonary calcification according to geographic region of birth.

PULMONARY TUBERCULOSIS

The absence or presence of X-ray evidence of reinfection tuberculosis was noted on each worker, but a diagnosis of tuberculosis was made only after analysis of the clinical record. Most of the chest roentgenograms showing evidence of disease were reviewed by the radiologists on the staff of the tuberculosis control division, United States Public Health Service. As far as possible the diagnostic standards of the National Tuberculosis Association (*106*) have been followed in classifying the cases. The classification is more or less arbitrary as regards activity of the case since only one film was available for each person examined. A history of recent sanatorial care was of considerable assistance in defining the dynamic status of several cases.

Percent affected

Sixty-two workers had lesions of reinfection tuberculosis. The rate of prevalence for all yards was 1.3 percent, or approximately the same as noted by the Public Health Service in its photofluorographic surveys of large industries. In one progress report of these surveys, Gould (*107*) found that 1.4 percent of 685,817 workers had X-ray evidence of reinfection tuberculosis of which more than 60 percent were minimal or incipient cases. Among the shipyard workers 79.0 percent of the cases classed as pulmonary tuberculosis had minimal involvement. This low proportion of moderately or far advanced cases may possibly be a result of tuberculosis case-finding by official agencies and by the health maintenance programs of medical departments of the shipyards, which screened out and removed the more advanced cases.

In four yards having preplacement medical examinations, the percent of employees showing X-ray evidence of pulmonary tuberculosis was 0.7, 0.9, 0.8, and 1.1, respectively. On the other hand, in three west coast shipyards not having preplacement examinations, the percentage of tuberculous employees by yard was 1.6, 2.3, and 2.0. Where pre-employment medical examinations are given, particularly those with good follow-up, the rate of active tuberculosis cases is about half that found where no pre-employment examination is given.

X-ray evidence of pulmonary tuberculosis was observed in 17 instances (2.9 percent) among 580 white male nonwelders but in only 15 instances (0.9 percent) among 1,755 white male welders. A somewhat similar relationship, i.e. higher prevalence among nonwelders, was observed among colored males and white females. Nine (2.4 percent) of 379 white female nonwelders had tuberculosis, and 8 (0.6 percent) of 1,245 white female welders were so affected. The prevalence among colored male nonwelders and welders was 8.7 and 1.7 percent, respectively.

According to location 1.2 percent of the welders working on the ways and 0.8 percent of the welders working on the platens showed evidence of pulmonary tuberculosis. White male and white female welders had higher tuberculosis rates on the ways, but colored males had higher rates on the platens.

Of the 30 instances of tuberculosis among nonwelders, 15 were working as electricians, 5 as sheet metal workers, 2 in clerical positions, and 8 in miscellaneous occupations. No tuberculosis was observed among the 192 machinists examined.

The 45 male workers and the 17 female workers having tuberculosis ranged in age from 17 to 66 and 19 to 56 years, respectively. The prevalence of tuberculosis among males less than 40 years of age was 1.03 percent and among males 40 years of age or over it was 2.82 percent. Corresponding findings for females were 0.92 percent and 1.69 percent, respectively. Only two tuberculous individuals were less than 20 years of age: one a colored male and the other a white female. Thus, the tuberculosis picture in general emphasizes that industrial tuberculosis is a disease of older male workers.

Degree of lung involvement

As near as could be judged by the data at hand, 39 of the cases were arrested or apparently arrested, 7 were apparently healed or cured and 16 had quiescent or unstable disease. Ten workers gave a history of having received sanatorial care. Among the tuberculous workers the proportion of what appeared to be unstable or quiescent lesions was higher for white females than for white males and for welders than for nonwelders.

When classified as to extent of lung involvement, it was found that 49 persons had minimal, 12 moderately advanced and 1 far advanced pulmonary tuberculosis. Eleven cases of moderately advanced disease were noted among males and one among females. One female had far advanced pulmonary tuberculosis.

Calcification

Thirteen (21.0 percent) of the tuberculous individuals showed pulmonary calcifications. This rate is 2½ times the rate found among the 4,650 shipyard workers studied. As it is not uncommon for healing tuberculous lesions to calcify, this would seem the most logical reason for the high prevalence among persons with tuberculosis. When these tuberculous individuals are traced to place of birth, no appreciable difference between coastal and interior States was noted. It has been shown(p. 117) that the interior States provided a higher proportion of persons showing calcification than did coastal States, but since the tuberculous persons were about equally divided between these two regions, the place of birth cannot be considered as the cause of the high rate of calcifications among this group.

Previous tuberculosis history

Several of the shipyard workers had had long periods of sanatorial care and had only undertaken their present work on the advice of physicians supervising their treatment. Two people had had thoracoplasties and several others had undergone phrenicectomy and pneumothorax therapy. In a few instances, evidence of tuberculosis had been reported to the workers following a mass photofluorographic survey several months earlier, but they had been retained in employment when clinical study revealed them to be non-infectious and their tuberculous disease inactive. Seven men with X-ray evidence of tuberculosis, including two active cases, either had been turned down for military service because the disease was discovered in the course of their induction examination or they had been previously diagnosed as having pulmonary tuberculosis.

Welding fumes

The effect of welding fumes on pulmonary tuberculosis is of special interest, particularly if arc-welder's siderosis may be considered analogous to other pneumoconioses. Reports in the literature tend to lead one to believe that arc-welding fumes are of minor significance in this connection. Sander (*37*), for instance, has observed a welder, studied by serial X-ray, whose minimal tuberculous lesion was healed as he continued welding. This author, after years of study of welders, also asserts that neither electric welding nor arc-welder's siderosis predisposes to tuberculosis or other lung infection. Groh, (*90*) likewise, has noted in a group of cases he has had under observation, that arc-welder's siderosis had not predisposed to tuberculosis or reactivated old lesions. Animal experiments (*108*) show that the welding fumes are less active than silica dust.

Although not too self-evident, it would seem that the difference in rates among welders and nonwelders is largely due to selective factors hard to define. The high proportion of colored male nonwelders (8.7 percent) having tuberculosis helps to boost the rate for this group. Over one-quarter (26.7 percent) of the nonwelders with tuberculosis had had sanatorial care, while only two (7.4 percent) of the tuberculous welders had been so treated. It is probable that the untreated welders were not aware of having the disease since persons who had been under treatment apparently avoided fume exposure.

CARDIOVASCULAR DISEASES

Heart disorders were classified under the same broad etiological headings followed in certain other Public Health Service investigations of industrial workers (*72, 73, 74, 75, 76, 109*). This classification is based on the outline prepared by the heart committee of the New York Tuberculosis and Health Association (*110*), sponsored by the American Heart Association and discussed by Hedley (*111*). Many of the workers observed and diagnosed as having arteriosclerotic or hypertensive heart disease were comparatively symptom free, especially among younger individuals and could be classed as preclinical or potential heart disease. A systolic blood pressure of 150 mm. Hg or more (*112*) and a diastolic pressure of 100 or more was interpreted as showing arterial hypertension. In many of them, arterial hypertension was essentially the only physical finding. At the other extreme were workers who had survived acute coronary episodes as verified in some cases by an electrocardiogram.

Prevalence of cardiovascular abnormalities

Three hunderd and seventy-nine individuals, 8.5 percent of all shipyard workers examined, had evidence of organic heart disease. More than three-fourths of the organic cardiac impairments encountered belong to the arteriosclerotic-hypertensive group and the remainder were mainly rheumatic heart disease. The 13 cases of other heart conditions included 6 persons with toxic heart disease, 5 persons with syphilitic heart disease and 2 persons with dextrocardia. Functional heart conditions were observed in 204 workers and mainly consisted of simple tachycardias, premature systoles and functional murmurs. Most of the 30 persons having premature systoles were less than 35 years of age.

Arteriosclerotic-hypertensive heart disease

Table 25 shows the prevalence of the arteriosclerotic-hypertensive group of heart disease among welders and nonwelders. It is observed that the rate for white male nonwelders (17.9 percent) is three times as great as that of white male welders (5.4 percent). Until analyzed by age, this finding was attributed to the nonwelder group being made up of older individuals (p. 65). A subsequent study of the prevalence rate by age in 10-year class intervals, however, revealed about a 3:1 ratio in the 25 to 34 age group, although with advancing year the difference becomes less. For those 45 years or over the welder yield a rate of 27.7 percent and the nonwelders 34.3 prcent.

TABLE 25.—*Number and percent of shipyard workers with certain cardiovascular findings for welders and nonwelders, by sex and color*

Cardiovascular findings	Welders				Nonwelders			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
	NUMBER OF WORKERS							
Total workers examined	3,087	1,677	224	1,186	972	560	46	366
Arteriosclerotic-hypertensive heart disease	136	90	27	19	128	100	9	19
Functional heart conditions	142	94	15	33	42	24	2	16
Rheumatic heart disease	43	28	4	11	9	6	0	3
Other heart conditions [1]	7	1	4	2	4	3	0	1
	PERCENT OF WORKERS EXAMINED							
Total workers examined	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Arteriosclerotic-hypertensive heart disease	4.4	5.4	12.1	1.6	13.2	17.9	19.6	5.2
Functional heart conditions	4.6	5.6	6.7	2.8	4.3	4.3	4.3	4.4
Rheumatic heart disease	1.4	1.7	1.8	.9	.9	1.1	0	.8
Other heart conditions [1]	.2	.1	1.8	.2	.4	.5	0	.3

[1] Includes four persons with toxic heart disease, five persons with syphilitic heart disease and two persons with dextrocardia.

In casting about for an explanation of this difference in prevalence of arteriosclerotic-hypertensive heart disease between welders and nonwelders, it was realized that many of the nonwelders were essentially engaged in bench work. It was apparent that the same description of activity could be assigned with reservations to welders employed on platens and in the shops, but workers on the shipways are prone to engage in more strenuous exercise and possibly require more agility in their work. For this reason selection of the welders may have occurred; those with heart disease tending to be excluded from work on the ways. When the data were inspected from the viewpoint of location of work, it was found that the prevalence of arteriosclerotic-hypertensive heart disease among welders working on ways and docks was only 4.9 and 4.5 percent, respectively, but its prevalence among welders working on platens, in the shops and in other locations, was 7.6, 8.8, and 8.2 percent, respectively. The findings thus seem to indicate that where the arteriosclerotic-hypertensive cardiac worker has a choice, he picks a location of work requiring less agility and activity as well as one with less exposure to such safety hazards as high places, causing dizziness. That this selection one imposed by the individual and not by the personnel office is indicated by the observation that no difference was found between the four yards where preplacement medical examinations were performed and the three yards where such examinations were not performed.

The favorable position of welders with regard to arteriosclerotic-hypertensive heart disease is observed also among white females and colored males (table 25). Although 12.1 percent of colored male welders have arteriosclerotic-hypertensive heart disease, this type of heart disease is observed in about 19.6 percent of colored male nonwelders. Similarly, the prevalence rate among white female welders and nonwelders is 1.6 percent and 5.2 percent, respectively. This much lower prevalence among females as a whole is probably attributable to age (p. 64) as little if any sex difference in the prevalence of arteriosclerosis occurs (*113*).

On comparing the prevalence of the arteriosclerotic-hypertensive groups among the workers in various trades (table 26), (*72, 73, 74, 75, 91, 109*) it is observed that shipyard workers rank next to storage battery workers in having a high prevalence rate. It must be remembered that, due to the great demand for manpower in war industries and the shortage caused by supplying personnel for the armed services, many older and less physically fit men had to be employed by shipyards. The yards showing the highest rates for arteriosclerotic-hypertensive heart disease were in areas where the demand for labor was greatest. Workers who came from other States to these areas were less skilled and possibly less healthy.

Rheumatic heart disease

The prevalence of rheumatic heart disease among male shipyard workers was 1.6 percent. The percentage age distribution of the two groups of heart disease among male shipyard workers is shown in table 26.

It is noted that regardless of type of employment the arteriosclerotic-hypertensive group becomes increasingly prevalent with advancing age. Rheumatic heart disease is much less prevalent in the age groups observed and a slight downward trend is discernible with advancing age.

Male shipyard workers have less rheumatic heart disease than Utah coal or metal miners and about the same rate as truck drivers (table 26). When place of birth, was considered it was found those born in New England, east north central and mountain regions had the highest rates, being 2.9, 2.5, and 2.1 percent, respectively, as compared to the rate of 1.5 for the United States as a whole. These are regions of high rheumatic fever incidence and mortality (*114*, *115*). Van Ravenswaay (*116*) has asserted that the probable relationship between streptococcus infections and rheumatic fever is now widely

TABLE 26.—*Percentage of male shipyard workers with arteriosclerotic-hypertensive heart disease or rheumatic heart disease classified according to age and compared with other male industrial workers*

Industrial group	Age in years					
	Total	15–24	25–34	35–44	45–54	55 or over
	PERCENT WITH ARTERIOSCLEROTIC-HYPERTENSIVE HEART DISEASE					
Shipyard workers	9.4	0.7	3.1	9.6	17.3	57.6
Utah coal miners	5.7	1.3	2.9	2.1	11.4	35.7
Utah metal miners	6.7	4.8	1.2	7.6	13.5	31.1
Utah smelter workers	8.6	3.1	1.7	4.4	14.3	37.2
Pottery workers	4.5	0	.9	2.2	11.3	25.5
Storage battery workers	12.3	0	1.6	7.4	29.9	41.3
Truck drivers	6.1	5.2	4.7	7.1	18.4	25.0
	PERCENT WITH RHEUMATIC HEART DISEASE					
Shipyard workers	1.6	3.1	1.6	1.3	0.3	1.2
Utah coal miners	2.8	2.5	.6	4.2	4.5	3.6
Utah metal miners	2.3	2.4	1.9	2.3	3.8	2.2
Utah smelter workers	.6	0	1.1	.3	.7	.7
Pottery workers	1.0	1.1	.7	1.1	1.8	0
Storage battery workers	1.2	0	2.0	1.4	.6	0
Truck drivers	1.7	0	1.9	2.6	0	0
	TOTAL NUMBER OF WORKERS EXAMINED					
Shipyard workers	2,835	421	1,138	799	307	170
Utah coal miners	507	79	170	142	88	28
Utah metal miners	727	83	323	172	104	45
Utah smelter workers	1,391	130	458	387	279	137
Pottery workers	1,627	350	549	370	221	137
Storage battery workers	757	74	246	217	157	63
Truck drivers	886	135	485	224	38	4

accepted and thereupon he showed within the limitations of his data that hemolytic streptococci are more widely distributed among troops of the Army Air Forces in the Rocky Mountain area and adjacent parts of the country than in the Southern parts of the country.

Among persons with heart disease under treatment in cardiac clinics of Philadelphia, Hedley (*117*) found the prevalence of rheumatic heart disease was highest in the younger age groups, and the arteriosclerotic-hypertensive type of heart disease was most prevalent in later life. This has been reported by other cardiologists (*118*).

Cardiographic findings

Seventy-five electrocardiograms were obtained during the study; 35 on welders, 23 on nonwelders and 17 on persons having a mixed exposure. No differences attributable to welding exposures could be demonstrated as only 6 of the 20 records on white male welders were abnormal, whereas 8 of the 18 records on white male nonwelders were abnormal. Among females, 3 of 12 records obtained on welders were abnormal and 1 of the 5 obtained on nonwelders was abnormal.

BLOOD PRESSURE FINDINGS

Mean blood pressure

As welders and nonwelders differ with respect to the prevalence of arteriosclerotic-hypertensive heart disease, it is desirable to examine the findings relative to blood pressure more intensively. This difference is largely due to differences in blood pressure, but it is not due solely to the arbitrary criterion of arterial hypertension. The mean, or average, of the systolic blood pressures of welders is lower than that of nonwelders. Table 27 shows the distribution of mean systolic and mean diastolic blood pressure values of welders compared with nonwelders for the three sex and color groups. For all ages white male nonwelders have a mean systolic blood pressure of 130.5 mm. Hg while that of welders is 123.1 mm. Hg. In the case of colored males the mean values for welders and nonwelders are 129.2 and 126.6 and for white females they are 119.2 and 115.8, respectively. This difference is not explainable entirely on the basis of age because the difference

TABLE 27.—*Mean systolic and diastolic blood pressures of shipyard workers by age, according to sex and color and welding status*

Age (years)	Welders				Nonwelders			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
	SYSTOLIC BLOOD PRESSURE							
Total	120.6	123.1	126.6	115.8	126.2	130.5	129.2	119.2
Under 25	115.0	117.0	121.0	113.1	116.0	119.0	*126.0*	113.8
25-29	149.2	122.2	125.1	114.8	120.1	126.7	136.9	114.5
30-34	120.9	122.6	126.5	116.3	122.3	125.5	131.3	116.7
35-39	123.4	125.3	126.1	119.3	127.4	130.2	125.8	123.4
40-44	126.3	125.3	134.5	126.1	127.1	128.7	116.7	125.9
45-49	129.7	129.6	138.1	125.6	129.8	132.3	124.5	124.8
50 or over	135.5	135.7	135.5	*128.0*	140.0	139.2	141.7	147.8
	DIASTOLIC BLOOD PRESSURE							
Total	76.1	77.2	80.2	73.7	78.9	80.4	82.4	76.1
Under 25	71.7	72.1	72.9	71.4	72.5	72.3	79.3	72.4
25-29	74.9	76.3	78.1	72.9	75.5	79.2	79.6	72.8
30-34	76.8	77.2	82.1	74.7	77.6	78.7	88.3	75.1
35-39	79.1	80.8	81.2	76.9	80.0	80.1	82.1	79.6
40-44	79.7	78.5	87.2	80.4	81.2	81.1	75.3	81.9
45-49	81.8	82.3	84.4	78.3	81.6	82.4	81.9	79.3
50 or over	83.3	82.9	87.7	*86.0*	84.4	84.1	88.4	86.4

Note: Figures in italics based on less than five persons.

present in each specific age group, especially among white males. ata on age variation of mean systolic blood pressure among white ale welders and nonwelders have been plotted in fig. 29 to illustrate hat the depression of blood pressure among welders is a group henomenon not related to age. The difference in mean systolic blood ressure values ranges from 2.0 mm. Hg in the age group under 25 ears to 5.5 mm. Hg in the age group 35-39 years. A tendency in he same direction is observed on comparing white female welders nd nonwelders (fig. 30).

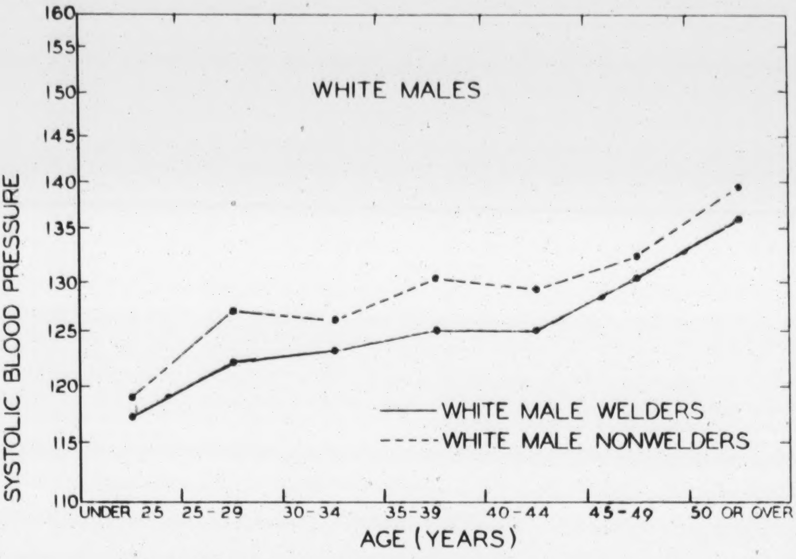


FIGURE 29.—Mean systolic blood pressures of white male shipyard workers according to age and welding status.

Similar welder-nonwelder blood pressure differences obtain when blood pressure data on separate shipyards are compared one with the other. In various shipyards the difference between the mean systolic pressures of white male welders and of white male nonwelders varies from 3.6 to 11.6 mm. Hg and of mean diastolic pressures from 1.3 to 5.3 mm. Hg. The mean systolic blood pressures in mm. Hg of the white male welders at shipyards A, B, C, D, E, G, and H were 121.5, 117.8, 119.1, 126.3, 125.0, 122.6, and 127.2, respectively, and the concomitant mean diastolic pressures at these yards were 76.3, 75.1, 76.2, 79.0, 78.1, 75.8, and 78.2, respectively. On the other hand, the mean systolic blood pressures in mm. Hg of white male nonwelders at yards A, B, C, D, E, G, and H were 129.5, 124.2, 130.7, 129.9, 130.8, 130.2, and 135.1, respectively, and the mean diastolic blood pressures of these workers were 80.7, 76.9, 79.2, 80.3, 80.0, 79.3, and 83.5, respectively. It may be seen, therefore, that regardless of the shipyard, its geographic location or the season of the year, welders have a lower blood pressure than nonwelders. The lowest mean systolic blood pressure values were observed in Southern shipyards (i.e., B and C), where hot humid weather prevailed at the time of the medical examinations.

As regards sex, all males (2,937) had a mean systolic pressure of 125.7 mm. Hg and a mean diastolic pressure of 78.5 mm. Hg. The mean systolic and diastolic blood pressures of 1,691 females on the other hand, were 116.6 mm. Hg and 74.2 mm. Hg, respectively. This sex difference, lower blood pressure among female workers, has been observed in other industrial surveys (*119*). The white males with a mixed exposure had mean systolic and diastolic blood pressures of 129.8 and 80.3 mm. Hg, respectively.

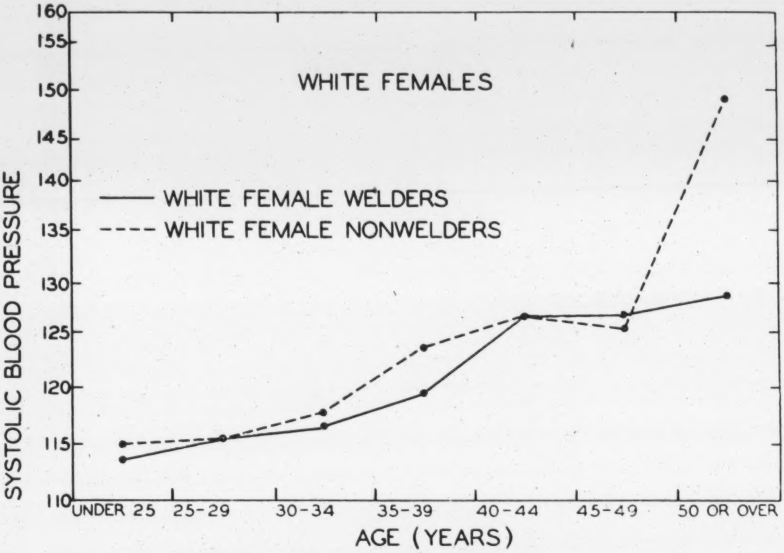


FIGURE 30.—Mean systolic blood pressures of white female shipyard workers according to age and welding status.

Arterial hypertension

A systolic blood pressure exceeding 150 mm. Hg (*112*) was, in some instances, the sole finding here designated as arterial hypertension. It is recognized that this is an arbitrary criterion and one which may tend to include certain normal older individuals and emotionally-upset younger individuals in the disease group. The criterion was selected to facilitate comparisons with other industrial workers surveyed by the United States Public Health Service.

It is seen in table 28 that in the age groups 20–29, 30–39, 40–49, 50–59, and 60–69 years, 2.3, 3.9, 7.7, 16.7, and 34.1 percent, respectively, of male shipyard workers were hypertensive. When the prevalence rate of arterial hypertension (systolic blood pressure 150 mm. Hg or more) of male shipyard workers is compared, by age groups, with that of workers in four other industries, it is found that they occupy the next to the lowest position (table 28). The rates for male shipyard workers are lower, in each age group, than for the 10,000 male industrial workers (*79*) examined by the Public Health Service in 1915–21, storage battery makers (*109*) and pottery workers (*91*) but they are higher than Utah workers except in the 50–59 age group (*72*, *73*, *75*). Thus, of male shipyard workers in the age group 20–29, only 2.3 percent have arterial hypertension in contrast to the 4.2 percent observed among the 10,000 workers and 2.2 percent of Utah workers. With increasing age there is an increasing prevalence of arterial hypertension in all these industrial workers.

TABLE 28.—*Percentage of male shipyard workers with arterial hypertension*[1] *according to age, compared with other male industrial workers*

Industrial group	Age in years				
	20–29	30–39	40–49	50–59	60–69
	PERCENT WITH ARTERIAL HYPERTENSION				
Shipyard workers	2.3	3.9	7.7	16.7	34.1
Utah workers	2.2	1.9	5.6	21.6	31.8
Pottery workers	3.2	5.8	13.7	21.2	43.1
10,000 male industrial workers	4.2	7.3	16.4	28.5	47.9
Storage battery workers	3.3	6.8	18.7	29.5	45.2
	TOTAL NUMBER OF WORKERS EXAMINED				
Shipyard workers	688	1,192	507	216	82
Utah workers	764	838	570	329	88
Pottery workers	569	447	256	160	51
10,000 male industrial workers	3,248	3,293	1,947	818	234
Storage battery workers	182	221	219	95	31

[1] Refers to systolic blood pressure in excess of 150 mm. Hg.

The low age-specific rates for shipyard workers as shown in table 28 is due mainly to the inclusion of welders as they outnumber nonwelders three to one. If welders are excluded, the percentage of white male nonwelders having arterial hypertension in the age groups under 30 years, 30–39 years, 40–49 years and 50 years or over are 5.0, 6.7, 11.3, and 23.6, respectively. These rates then approximate those observed among industrial workers having relatively high rates (pottery, storage battery and the 10,000 industrial workers).

These differences between welders and nonwelders in prevalence of hypertension also persist on comparing the percent who are hypertensive on the basis of having a diastolic blood pressure of either 90 mm. Hg or more, or 95 mm. Hg or more. At a diastolic level of 95 or over, only 3.3 percent of welders are hypertensive in comparison to 7.1 percent of nonwelders. Age trends are also present as 1.1, 3.4, 6.3, and 12.7 percent of welders and 2.5, 3.7, 7.6, and 13.3 percent of nonwelders are hypertensive in age groups of under 30 years, 30-39, 40-49, and 50 years or over, respectively. The figures for the same respective age groups at the 90 mm. Hg or greater level are 5.4, 12.8, 16.9, and 26.8 for welders and 6.8, 15.4, 28.0, and 33.9 for nonwelders.

When white males with hypertension are excluded and the mean systolic blood pressures of the remainder are redetermined, the same difference between welders and nonwelders can be shown; the blood pressure of welders is lower. For all ages, the mean systolic blood pressure of welders is 121.6 mm. Hg and that of nonwelders is 125.5 mm. Hg. The welders are lower in each of the various age groups. The mean systolic pressure for welders, arbitrarily declared free of hypertension, for the age groups under 25 years, 25-29 years, 30-34 years, 35-39 years, 40-44 years, 45-49 years and 50 years and over is found to be 116.4, 121.3, 121.9, 123.4, 123.4, 126.3, and 129.1 mm. Hg respectively, and of nonwelders for the same age groups it is found to be 117.8, 124.3, 124.3, 126.5, 124.0, 129.0, and 129.6 mm. Hg, respectively.

Theoretical considerations

As welders are found to have a slightly lower blood pressure than workers who are not exposed to a welding environment, it seems that factors associated with the welding process lower the blood pressure. The difference between welders and nonwelders was too small to make a clinical impression on the examining physician at the time of the individual examinations, hence no laboratory tests were made to establish or identify possible depressor or antipressor agents (*120, 121*) or factors. It has been shown above that by removing from consideration the hypertensive individuals, the difference still obtains. It might be expected that such "hypertensive" individuals would react more dramatically to depressor agents generated in the body as a result of welding exposure. It is seen, however, that this depressor action affects both normal and hypertensive persons, but the degree of action is somewhat greater when the latter are included in the comparison.

Further association of lowered blood pressure with welding exposure is shown by noting the effects of length of exposure. To study this phenomenon, the white male welders were divided into five groups according to months of welding experience (i.e., less than 6 months, 6 to 11 months, 12 to 23 months, 24 to 35 months and 36 months or more) and into 5 year age groups. The average, or mean, systolic blood pressure for each of these groups was then determined. This analysis revealed that it was lowest for all ages after welding either less than 6 months or for a period of 6 months to 1 year. The under 25 and 40-44 year age groups were the only groups which showed lowest mean blood pressure when welding exposure was less than 6 months; the remainder showed it to be in the 6 to 11 month group. In six of the seven individual shipyards the lowest mean systolic blood pressures were observed among welders who had worked less than 12 months. During the first year of exposure to a welding environment, there appears to be a lowering of blood pressure. A similar phenomenon was observed among TNT workers by Sievers, et al. (*119*).

On considering the differences in mean systolic blood pressure findings among white male welders of all ages according to location of work such as ways, outfitting docks and shops, it was found that those with the highest values worked in the shops and the lowest on the docks. Leadermen tend to have lower and pipe welders higher systolic blood pressures than do plate welders; the difference, however, is not striking.

To recapitulate briefly the findings pertaining to blood pressure, it is noted that: (a) the mean systolic blood pressure values of male shipyard workers compare favorably with those observed in other industrial workers; (b) white, male welders have relatively less arterial hypertension than white male nonwelders; (c) the mean blood pressures (systolic or diastolic) of welders is lower than that of nonwelders. The slightly lower blood pressure of welders should be regarded as a mild toxic action arising out of welding exposure. It may be due to nitrogen oxides which give rise to sodium nitrite after absorption by the body or to other depressor or antipressor agents as yet unidentified. Further research is required to identify the agents involved. It is difficult to say what effects would arise out of more intense welding fume exposure or a longer period of exposure than was observed in this study.

PHYSICAL HANDICAPS, DEFORMITIES, AND OTHER ABNORMALITIES

The tremendous demand for manpower in war industries brought the question of the utilization of physically handicapped workers into the limelight. This topic was of such interest and importance that it was the subject of a number of significant discussions (*122*, *123*, *124*, *125*) among industrial physicians and personnel directors. No attempt will be made here to review this field completely, but the general trend of thought seems to have been that many handicapped persons can do useful and good work safely, particularly if they are placed according to their capabilities. Closely related to and part of this general problem is the reabsorption by industry of returning disabled veterans.

These data on 4,650 shipyard workers provide a rough estimate of how the physically handicapped can be employed on active jobs in the steel fabrication industries as exemplified by the modern construction of ships. In some respects an exact count of the handicaps in this group is not possible because of the limited physical examination (p. 36). For example, hearing was not tested and hernia was not routinely checked. Thus, in most respects the figures on handicaps here presented are underestimates rather than overestimates of their prevalence in the group under study. Cardiac defects and tuberculosis, of which more accurate measures were available, are discussed on pages 119, 123.

Approximately 700 (15 percent) shipyard workers had 1 or more gross physical handicaps or abnormalities, excluding tuberculosis, heart disease and syphilis. About 7 percent of these had more than one defect or abnormality. One hundred and forty-one (3 percent of all workers or 20.1 percent of those with handicaps) were unfit for military service, having either been turned down at induction or discharged from service.

Musculoskeletal defects

These were the most common defects. They were observed in 281 persons (6.1 percent of all workers). Orthopedic defects included scoliosis, kyphosis or lordosis (affecting 46 persons), amputated members (affecting 53 persons), diseases of the joints, neurologic residuals of anterior poliomyelitis or hemiplegias and two cases of dwarfism.

Most of the amputations were of fingers. A whole arm missing was observed twice and amputations involving forearm, thigh, and leg were each observed in three different individuals. A large proportion of extremity losses (63.6 percent) were observed among employees of one Southern shipyard, and as these persons had previously engaged primarily in agriculture or saw milling this finding probably merely reflects the hazards of this earlier work. The loss of fingers was more often found among workers with previous industrial experience especially in mining and manufacturing, than among those whose experience was solely in agriculture, trade or service.

Hernias

This defect was noted in 56 males, or 1.9 percent of all male workers examined, and one female worker in the shipyards. Here again the occurrence is based largely on the history of this impairment. It is believed that a much larger percentage of the men examined would have been found to be affected had all examining physicians paid particular attention to this condition. Also, since the shipyard population was comprised of older men and the prevalence of hernia is known to increase with age (*79*) one would expect a higher rate as this is approximately the same as found among young men drafted for military service (1.8 percent). Of the hernias noted 43, or 75.4 percent, were classified as inguinal.

One examiner who paid particular attention to the presence or absence of hernias found 28 cases (3.9 percent) among the 713 males he examined. If this rate is applied to the entire male group studied (2,950) it will be seen that the expected number of males with hernia would be 115 instead of the 56 cases found.

Two percent of the men drafted in World War I (*126*) had inguinal hernias. According to Erdman (*127*), inguinal hernias represent 80 percent of all hernias and 90 percent of those observed in males. More recent figures, based on medical disqualifications (4–F) of World War II (*128*), show that hernia was the disqualifying cause in 229,000 cases. This number comprises 5.7 percent of the 4,049,000 men declared 4–F, or 1.8 percent of the total of 13,000,000 men examined. A survey of 10,000 male industrial workers in the United States (*79*) between 1915 and 1921, showed that 9.9 percent had hernias. A more recent industrial survey of 10,000 steel plant employees by Kammer (*129*) revealed that 1.2 percent of 3,900 applicants for employment and 4.3 percent of 6,100 employees, or 3 percent of applicants and employees combined, had hernias. The average age of men (37 years) in Kammer's study is about the same

(35 years) as male shipyard workers. Accepting these various sets of data at their face value, it would seem to indicate that a gradual decrease in the prevalence of hernias has occurred during the last 25 years as the military data reveal a drop from 2 to 1.8 percent, and data of United States male industrial workers reveal a drop from 10 to 3 percent. Although standards of diagnosis undoubtedly play an important part in these rates, age and other selective factors are of more importance.

Other impairments or abnormalities

Included were 30 cases having varicose veins, 40 cases having such structural abnormalities as varicocele, hydrocele, hemorrhoids, and cryptorchidism, 43 neuropsychiatric cases, and 25 persons with miscellaneous conditions such as diabetes, endocrine disturbances, acute injuries and pregnancy.

Military rejections

The information supplied by the military-unfit shipyard workers provides a general impression of the nature of their disabilities. Classified as to cause, these 141 cases are distributed as follows: neuropsychiatric, 22; cardiovascular, 20; respiratory, 19; gastrointestinal. 6; genitourinary, 4; orthopedic, 21; abnormality of special senses, 18; and unspecified, 31.

LABORATORY FINDINGS

HEMATOLOGY

As the welding fumes are potentially hemolytic, considerable attention was given to the blood picture. It was felt that some manifestation of toxic anemia might be induced by exposure to these fumes. A so-called toxic anemia may represent according to Browning *(130)* "a dyshaemopoietic anemia, occurring in a person known to have been exposed to substances capable of producing toxic effects on the blood-forming organs." She further states that hemoglobin values of 70 percent or less warrant investigation in a worker exposed to toxic substances. The more common present day lead exposures rarely produce marked changes in the blood picture (*131*). Furthermore, it must be recalled how few distressing symptoms may occur in moderately active persons with severe anemia. Castle and Minot (*132*), for instance, state that a 50 percent reduction in values for concentration of erythrocytes, or hemoglobin, is required before outstanding symptoms are produced, and if the reduction is slow and insidious, little discomfort may be complained of even though the red blood cells and hemoglobin are reduced to one-fifth of normal.

Anemia

In the course of this investigation anemic manifestations were observed in only a few individuals. Hematologic tests included the determination of total cell volume (hematocrit) with Wintrobe tubes. hemoglobin, sedimentation rate of erythrocytes and study of blood films for evidence of basophilic stippling. Hemoglobin values found in this study were somewhat lower than the generally accepted normal for American males and females, (*55*, *133*) and were almost identical for welders and the control group (nonwelders). The same holds true for cell volume percent and stippled cells. In other words, if an anemia-provoking agent were present it had a similar effect on welder and nonwelder. Therefore, it may be assumed that the anemic tendency was not due to arc-welding exposures. Moreover, no severe anemia cases were observed among either welders or nonwelders.

Clinical details from the case histories of men having a volume of packed RBC of 39 percent or lower are presented in table 29. These cases number 36 and include 22 welders and 14 nonwelders.

TABLE 29.—*Abbreviated case histories of male shipyard workers having an hematocrit reading of 39 percent or lower*

Case number	Age (yrs.)	Occupation and location	Pounds of rods used daily and size	Months shipyard welding	Symptoms	Physical findings							Laboratory findings			
						Temperature F.	Pulse	Blood pressure	ENT	Chest	Height and weight	Chest X-ray	Hb	RBC volume	Stippled cells	RBC sedimentation rate (corrected)
						Degrees								*Percent*		
117	41	Electrician (shop)	0	0	Headache, vertigo, constipation	98.6	96	102/76	+	Rales	N.S.	0	14.3	35	0	13
137	17	Prod. welder (ways)	8 lbs., 3/16 in.	6	Negative	98.4	76	120/65	+	0	65/125	0	13.1	39	600	4
186	32	Prod. welder (docks)	20 lbs., 5/16 in.	12	Do	97.0	72	115/74	+	0	74½/152	0	12.7	38	700	18
440	49	Electrician (fab. shop)	0	0	Do	97.8	70	130/88	+	0	71½/150	0	12.9	37	N.S.	16
446	21	Tack welder (ways)	6 lbs., 3/16 in.	6¼	Do	98.0	70	112/70	0	0	68/140	0	12.9	39	N.S.	0
534	46	Layout (platens)	0	0	Palpitation, shortness of breath, hemorrhoids	98.6	88	120/80	0	0	67½/165	0	7.8	38	N.S.	4
1011	31	Prod. welder (ways)	20 lbs., 3/16 in.	13¼	Peptic ulcer	98.4	72	104/68	0	0	70/160	0	15.5	39	2,600	12
1035	20	Prod. welder (ways)	2½ lbs., 3/16 in. 5/32 in.	20	Cough, productive	98.6	82	108/78	+	0	71½/140	0	14.7	38	1,500	0
1086	25	Layout (platens)	0	0	Weakness, colds	98.0	88	118/78	+	0	69/114	0	14.7	37	800	0
1491	18	Prod. welder (platens)	5 lbs., 3/16 in.	12	Headache, myalgia	98.6	88	110/56	++	0	70/122	0	8.6	34	N.S.	3
2167	17	Prod. welder (ways)	12 lbs., 5/32 in.	3	Productive cough, drowsiness	99.2	90	118/65	0	0	72½/150	0	7.9	34	0	12
2170	32	Prod. welder (docks)	6 lbs., 5/32 in.	9½	Headache, hemorrhoids	98.7	80	126/75	+	0	68/140	0	8.6	32	0	1
2234	57	Machinist (shop)	0	0	Under treatment for nephritis, deafness	98.8	68	172/110	+	0	70½/130	0	11.3	39	1,500	27
2238	58	SM worker (shop)	0	0	Deafness	98.0	90	150/70	+	0	66½/124	0	11.7	39	0	2
2287	40	Ship fitter (shop)	0	0	Negative	98.6	78	140/80	0	0	71/170	0	14.3	39	0	6
2320	56	Machinist hlpr. (shop)	0	0	Chest pain, dyspnea (asthma), hypertension	99.0	80	198/110	+	Barrel, fine rales	66/156	GG	11.7	38	0	3
2369	2[illegible]	Prod. welder (dock)	15 lbs., 5/32 in.	32	Metal fume fever frequently	98.6	72	110/76	0	0	67/150	0	14.3	34	0	0

TABLE 29.—*Abbreviated case histories of male shipyard workers having an hematocrit reading of 39 percent or lower*—(*Continued*)

Case number	Age (yrs.)	Occupation and location	Pounds of rods used daily and size	Months shipyard welding	Symptoms	Physical findings							Laboratory findings			
						Temperature F.	Pulse	Blood pressure	ENT	Chest	Height and weight	Chest X-ray	Hb	RBC volume	Stippled cells	RBC sedimentation rate (corrected)
						Degrees								*Percent*		
2404	27	Prod. welder (platens)	12 lbs., 5/32 in.	14	Under treatment for anemia, fainting	98.6	90	116/78	0	0	70/130	0	13.1	38	0	8
2481	39	Prod. welder (docks)	6 lbs., 5/32 in.	7	Negative	98.0	78	122/86	+	0	68½/168	0	12.4	39	0	33
2486	16	S-Apprentice welder (platens)	10 lbs., 5/32 in.	4	Do	99.0	90	102/60	0	0	66/128	0	12.0	37	0	23
2499	17	Prod. welder (docks)	10 lbs., 5/32 in.	2½	Occ. cold	99.2	88	130/70	0	0	66/130	0	12.4	39	500	21
2569	16	Tack welder (docks)	6 lbs., 5/32 in.	1½	Negative	98.6	84	94/60	+	0	68/140	0	12.4	28	0	0
3216	59	SM worker (docks)	0	0	Cough, deafness	99.0	88	184/110	+	Rales	69/169	GG	13.0	38	0	30
3307	16	SM worker (docks)	0	0	Negative	98.0	76	112/72	+	0	68/135	0	13.5	39	800	7
3381	17	Prod. welder (ways)	10 lbs., 5/32 in.	10	Do	98.6	72	116/78	++	0	67/142	0	12.4	39	0	2
3591	40	Pipe welder (docks)	3 lbs., 5/32 in.	19	Do	98.6	72	108/65	+	Thoracoplasty	67½/180	GG	13.8	39	0	17
4255	32	Tack welder (pipe shop)	0	5	Do	98.6	90	130/84	0	0	63/129	0	11.7	38	0	27
4455	25	Prod. welder (docks)	12 lbs., 5/32 in.	18	Chest pain, fatigue	98.6	72	118/72	+	0	67½/124	0	13.1	39	100	19
4508	42	Prod. welder (platens)	15 lbs., 5/32 in.	17	Negative	99.0	92	122/68	++	0	68/142	0	13.1	37	700	0
4605	44	Electrician (shops)	0	0	Chest pain, hernia	98.6	60	120/76	0	0	69/150	0	13.5	38	100	6
4613	49	Electrician (shop)	0	0	Negative	98.4	60	120/70	+	0	70/151	0	11.7	38	800	0
5091	31	Welder (ways)	10 lbs., 3/32 in.	12	Sinusitis, colds	98.0	72	112/70	0	0	67½/123	0	13.8	39	100	3
6123	36	Prod. welder (ways)	20 lbs., 3/16 in. 5/32 in.	27	Negative	97.6	54	126/86	0	0	68½/154	0	13.5	38	200	2
6166	54	Machine tender (salvage)	0	0	Do	96.0	84	148/90	0	0	68/170	GG	13.5	38	1,600	19
6194	64	Gear operator (warehouse)	0	0	Vertigo	99.8	80	158/80	0	0	67½/140	0	12.4	39	0	6
6654	33	Prod. welder (platens)	35 lbs., 1/4 in.	30	Anorexia, nausea	98.6	76	124/84	0	0	69/178	0	12.4	39	0	0

TABLE 30.—*Abbreviated case histories of female shipyard workers having an hematocrit reading of 33 percent or lower*

Case number	Age (yrs.)	Occupation and location	Pounds of rods used daily and size	Months shipyard welding	Symptoms	Physical findings							Laboratory findings			
						Temperature F.	Pulse	Blood pressure	ENT	Chest	Height and weight	Chest X-ray	Hb	RBC volume	Stippled cells	RBC sedimentation rate (corrected)
						Degrees								*Percent*		
270	18	Prod. welder (fab. shop)	35 lbs., ¼ in.	9¾	Colds, frequent	98.5	96	100/70	0	0	67/120	0	15.5	33	N.S.	17
312	29	Prod. welder (platens)	30 lbs., ¼ in.	12½	Head cold	99.2	72	110/78	++	0	65/165	0	15.5	33	N.S.	7
359	33	Do	25 lbs., 3/16 in.	6¼	Negative	98.6	78	122/80	0	0	63/125	0	12.4	33	N.S.	56
373	29	Flat welder (SM shop)	10 lbs., 5/32 in.	4¼	Headache	98.2	80	120/74	0	0	66/140	Fibro 1. apex	11.9	31	N.S.	0
395	38	Tack welder (platens)	6 lbs., 3/16 in.	6½	Occ. headache, anorexia and frequent colds	99.4	72	140/65	++	0	65/139	0	8.8	32	N.S.	3
398	34	Prod. welder (platens)	30 lbs., 3/16 in., 5/32 in.	17½	Headache, anorexia	98.4	82	112/84	+	0	67/119	0	9.7	32	N.S.	0
1057	24	Welder (platens)	37 lbs., 7/32 in.	16	Negative	98.8	76	110/65	0	0	63½/160	0	9.2	32	2,000	13
1418	32	Welder (ways)	3/16 in.	3¾	Hay fever (Aug.)	98.0	90	124/70	0	0	64/128	Tbc.	7.7	29	0	10
1449	31	Welder (platens)	5/32 in., ¼ in.	5	Weakness, menorrhagia, constipation	98.6	88	122/65	0	0	64/122	0	9.2	32	0	0
1472	24	Welder (platens)	5/16 in.	4	Freq. colds, productive coughs, substernal chest pain	98.6	100	108/68	+	Bilateral friction rub	65/110	0	8.6	32	N.S.	0
1474	30	Prod. welder (platens)	27 lbs., 3/16 in. 5/16 in., ¼ in.	11½	Eye flash	98.6	86	110/70	+++	0	66/160	0	12.4	32	Present	15
1615	20	Welder (ways)	30 lbs., ¼ in.	6	Tonsillitis, pallor	98.4	88	98/60	+++	0	67/120	0	9.7	30	N.S.	18
2201	28	Welder (platens)	12 lbs., 5/32 in.	16¼	Fatigue, cough, tinnitus, cold and postnasal drip	99.4	92	125/72	++	0	68/145	0	10.7	33	0	2
2313	21	Welder (ways)	8 lbs., 5/32 in.	4	Chr. otitis media with otorrhea	97.9	96	98/70	++	0	63/132	0	11.0	32	0	36
2513	34	Prod. welder (docks)	10 lbs., 5/32 in.	3¾	Dysuria	98.6	66	106/68	0	0	68/140	0	10.4	33	0	8
2531	30	Prod. welder (platens)	7 lbs., 5/32 in., 3/16 in.	22¼	Menorrhagia	98.6	72	112/76	0	0	65½/128	0	8.6	30	0	12

TABLE 30.—*Abbreviated case histories of female shipyard workers having an hematocrit reading of 33 percent or lower*—(Continued)

Case number	Age (yrs.)	Occupation and location	Pounds of rods used daily and size	Months shipyard welding	Symptoms	Physical findings							Laboratory findings			
						Temperature F.	Pulse	Blood pressure	ENT	Chest	Height and weight	Chest X-ray	Hb	RBC volume	Stippled cells	RBC sedimentation rate (corrected)
						Degrees								*Percent*		
2622	21	Prod. welder (docks)	50 lbs., 5/32 in.	11½	N. S.	99.0	88	108/68	+	N.S.	65/110	0	9.2	33	0	33
3526	37	Tack welder (platens)	N. S.	14	Palpitation. menorrhagia, dysmenorrhea, chest pain left side, cough, subacute otitis media	98.0	60	148/86	++	Coarse rales	65½/158	0	9.2	33	0	10
3568	19	Welder (assembly)	12½ lbs., 5/32 in.	13	Cold, sore throat 1-wk. duration, abdominal pain	99.2	84	118/76	0	0	64/108	0	8.6	32	0	13
3678	41	Welder (docks)	15 lbs., 5/32 in. 3/16 in.	17	Sinusitis for years. Colds	98.2	88	110/78	0	0	67½/173	0	8.1	33	3,500	11
4288	23	Welder (ways)	6 lbs., 3/16 in., 5/32 in. 1/8 in.	6	Cold, 2 wks., hacking cough, weakness, menorrhagia	99.2	90	124/84	0	0	69/130	0	9.8	33	N.S.	9
4372	23	Tack welder (platens)	7 lbs., 3/16 in. 5/32 in.	1½	Recovering from cold (2-weeks) otitis media as child	98.6	72	112/55	++	0	60½/90	0	9.8	33	0	4
5239	24	Welder (assembly)	5 lbs., 3/32 in. 5/32 in.	1	Tinnitus	98.2	96	110/60	++	0	69/133	0	10.4	31	25,000	22
5310	19	Welder (assembly)	4 lbs. 1/8 in.	¾	Negative	97.2	72	102/60	0	0	62/103	0	9.2	32	0	13
5419	21	Prod. welder (ways)	2 lbs., 5/32 in. 1/8 in.	6	Chest cold, chest pain and cough	98.4	84	120/62	++	0	67½/148	Active tbc.	7.0	26	300	0
6275	41	Prod. welder (platens)	10 lbs., 3/16 in. 1/4 in.	18	Headache	98.4	96	138/80	++	0	61/105	0	10.4	33	800	3
6336	30	Tack welder (dock)	6 lbs., 3/16 in.	15	Headache cough 2 mos., dysuria	98.6	72	132/70	0	0	63½/158	Dextrocardia	8.6	31	N.S.	33

Similarly, pertinent details from the case records of 27 female welders found to have the lowest hematocrit readings observed in the study are reproduced in table 30.

Tables 29 and 30 show certain points of interest which relate to age, occupation, welding experience, length of service and the occurrence of symptoms and signs.

These case records have been selected for tabulation in order to define the most anemic states encountered. Although a number of causes for the anemia are suggested by study of these selected cases such as malnutrition, gynecological conditions and tuberculosis, a common pattern with an occupational basis is lacking.

Study of the blood films also supports the view that there was only little abnormal hemapoietic activity. No nucleated red blood cells were observed in any of the blood films. This observation ties in with the relative paucity of punctate basophilia observed in the blood films. As basophilic stippling is a phenomenon closely related to reticulocytosis, it provides a measure of activity in the blood-forming organs (*134*).

Hemoglobin findings

Table 31 shows the distribution of hemoglobin values of the welders and nonwelders according to sex and color. It is noted that the mean hemoglobin value of the blood of welders is almost the same as that of nonwelders and the well known sex difference is apparent (fig. 31). Colored males tend to have somewhat lower values than white males.

The mean hemoglobin values, when compared by shipyard, show no significant difference if allowance is made for sex and color (appendix table 43).

White male welders apparently in good health (no diagnosis) show slightly higher hemoglobin values than those with a diagnosis of some disease; the former being 14.9 gm. per 100 cc. of blood as compared with 14.3 for the latter. Mean hemoglobin values of healthy white male welders, when considered for individual shipyards, range from 14.7 to 15.2 gm. per 100 cc. of blood. Similar minor and insignificant differences are present on comparing white female welders by shipyard or by condition of general health.

Slightly lower hemoglobin values are observed among older employees, both welders and nonwelders, but the difference is not regarded as significant. The mean hemoglobin values, for instance, of white male welders under 35 years of age, 35 to 44 years, 45 to 54 years and 55 years or over are 14.6, 14.5, 14.3, and 14.2 gm. per 100 cc. of blood, respectively, and of nonwelders for the corresponding age groups are 14.7, 14.7, 14.6, and 14.3 gm. per 100 cc. of blood, respectively.

A larger proportion of female welders of galvanized (zinc-coated) metal show evidence of anemia (i.e., less than 11.5 gm. of hemoglobin per 100 cc. of blood) than do those who reported they did little or no welding of this metal. Slightly over 50 percent of the female welders who spent more than $^{3}/_{4}$ of each shift working on zinc, but only 20.7 percent of those doing little or no work on zinc, have this degree of hemoglobin deficiency. A similar difference is not observed among male welders.

TABLE 31.—*Hemoglobin values of shipyard workers according to sex and color, by welding status*

Hemoglobin gms. per 100 cc. of blood	Welders				Nonwelders			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
	NUMBER							
Total	2,740	1,438	184	1,118	896	518	38	340
Less than 7.5	1	0	0	1	0	0	0	0
7.5–8.4	3	1	0	2	3	1	2	0
8.5–9.4	20	4	0	16	6	0	2	4
9.5–10.4	49	0	2	47	10	0	2	8
10.5–11.4	149	8	3	138	43	4	3	36
11.5–12.4	513	76	20	417	155	26	7	122
12.5–13.4	432	150	28	254	133	48	4	81
13.5–14.4	735	477	69	189	238	161	10	67
14.5–15.4	581	503	49	29	204	183	4	17
15.5–16.4	200	167	9	24	71	65	2	4
16.5–17.4	43	39	3	1	29	27	2	0
17.5–18.4	12	11	1	0	3	3	0	0
18.5–19.4	2	2	0	0	1	0	0	1
Mean	13.6	14.5	14.0	12.5	13.8	14.6	12.9	12.7
Standard deviation	1.6	1.2	1.2	1.3	1.6	1.2	2.1	1.3
	PERCENT							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 7.5	(1)	0	0	0.1	0	0	0	0
7.5–8.4	0.1	0.1	0	.2	0.3	0.2	5.3	0
8.5–9.4	.7	.3	0	1.4	.7	0	5.3	1.2
9.5–10.4	1.8	0	1.1	4.2	1.1	0	5.3	2.3
10.5–11.4	5.5	.5	1.6	12.3	4.8	.8	7.9	10.6
11.5–12.4	18.7	5.3	10.9	37.3	17.3	5.0	18.4	35.9
12.5–13.4	15.8	10.4	15.2	22.7	14.9	9.3	10.5	23.8
13.5–14.4	26.8	33.2	37.5	16.9	26.6	31.1	26.3	19.7
14.5–15.4	21.2	35.0	26.6	2.6	22.8	35.3	10.5	5.0
15.5–16.4	7.3	11.6	4.9	2.2	7.9	12.5	5.3	1.2
16.5–17.4	1.6	2.7	1.6	.1	3.2	5.2	5.2	0
17.5–18.4	.4	.8	.6	0	.3	.6	0	0
18.5–19.4	.1	.1	0	0	.1	0	0	.3

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[1] Less than 0.05 percent.

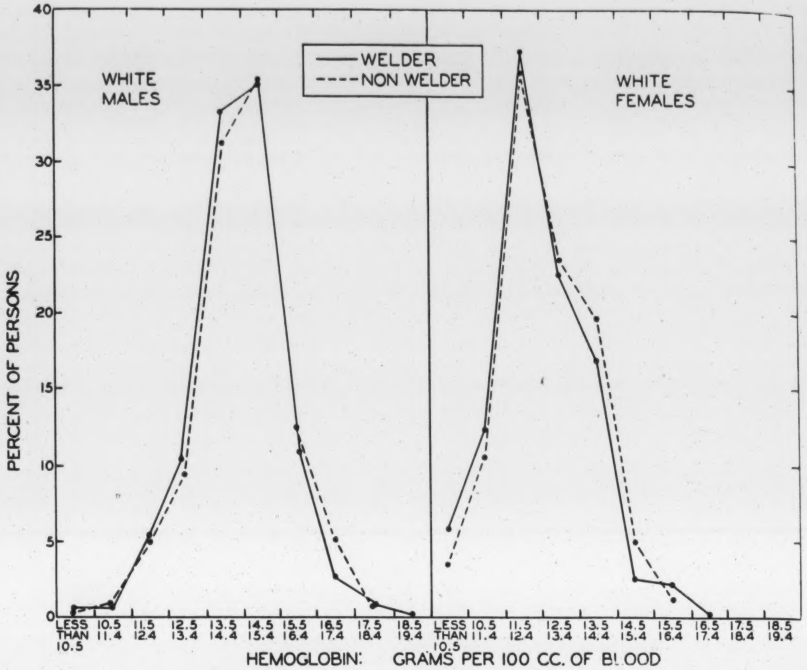

FIGURE 31.—Percentage distribution of hemoglobin values of white male and white female shipyard workers according to welding status.

Hematocrit readings

A summary of the hematocrit readings, or relative volume of packed red blood cells (cc. per 100 cc.), is shown in table 32. It is noted that the mean readings for males (46.7) and females (41.4) are approximately the same as published American standards. Wintrobe (*55*), for instance, states that hematocrit reading in volume percent for males is 47 ± 7 and that for females is 42 ± 5. These values are identical with those recommended by the American Society of Clinical Pathologists (*135*), and are approximately the same as the mean values and ranges suggested by Simmons and Gentzkow (*136*). The curves in fig. 32 show how nearly these data conform to the standards.

TABLE 32.—*Volume of packed red blood cells for shipyard workers according to sex and color, by welding status*

Red cells per 100 cc. of blood	Welders				Nonwelders			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
	NUMBER							
Total	2,742	1,439	184	1,119	897	519	38	340
Less than 30	3	1	0	2	0	0	0	0
30	3	0	0	3	0	0	0	0
31	3	0	0	3	0	0	0	0
32	10	1	0	9	0	0	0	0
33	11	0	0	11	0	0	0	0
34	14	2	0	12	4	0	0	4
35	22	0	1	21	8	1	0	7
36	23	0	0	23	2	0	0	2
37	46	3	3	40	11	2	0	9
38	67	5	0	62	21	6	0	15
39	111	10	0	101	37	5	2	30
40	169	21	5	143	49	6	3	40
41	166	35	4	127	57	11	4	42
42	211	67	9	135	69	18	3	48
43	210	75	10	125	80	31	2	47
44	278	144	16	118	80	44	4	32
45	269	168	29	72	85	55	5	25
46	228	166	19	43	89	65	2	22
47	212	154	26	32	72	58	4	10
48	210	172	22	16	64	61	0	3
49	156	132	13	11	55	49	3	3
50	132	116	11	5	39	37	2	0
51	81	70	10	1	23	23	0	0
52	43	40	1	2	23	22	1	0
53	32	27	5	0	14	14	0	0
54	20	20	0	0	7	6	1	0
55 or over	12	10	0	2	8	5	2	1
Mean	44.5	46.7	46.2	41.4	44.9	46.8	45.2	41.9
Standard deviation	4.2	3.2	.2	3.5	4.0	3.3	4.2	3.0
	PERCENT							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 30	0.1	0.1	0	0.2	0	0	0	0
30	.1	0	0	.3	0	0	0	0
31	.1	0	0	.3	0	0	0	0
32	.4	.1	0	.8	0	0	0	0
33	.4	0	0	1.0	0	0	0	0
34	.5	.1	0	1.1	.4	0	0	1.2
35	.8	0	.6	1.9	.9	.2	0	2.1
36	.8	0	0	2.0	.2	0	0	.6
37	1.7	.2	1.6	3.6	1.2	.4	0	2.6
38	2.4	.3	0	5.5	2.3	1.2	0	4.4
39	4.0	.7	0	9.0	4.1	1.0	5.3	8.8
40	6.2	1.5	2.7	12.8	5.5	1.2	7.9	11.8
41	6.1	2.4	2.2	11.3	6.4	2.1	10.5	12.3
42	7.7	4.6	4.9	12.1	7.7	3.5	7.9	14.1
43	7.7	5.2	5.4	11.2	8.9	6.0	5.3	13.8
44	10.1	10.0	8.7	10.5	8.9	8.5	10.5	9.4
45	9.8	11.7	15.8	6.4	9.5	10.6	13.1	7.4
46	8.3	11.5	10.3	3.8	9.9	12.5	5.3	6.5
47	7.7	10.7	14.1	2.9	8.0	11.2	10.5	2.9
48	7.7	11.9	12.0	1.4	7.1	11.7	0	.9
49	5.7	9.2	7.1	1.0	6.1	9.4	7.9	.9
50	4.8	8.1	6.0	.4	4.4	7.1	5.3	0
51	3.0	4.9	5.4	.1	2.6	4.4	0	0
52	1.6	2.8	.5	.2	2.6	4.2	2.6	0
53	1.2	1.9	2.7	0	1.6	2.7	0	0
54	.7	1.4	0	0	.8	1.1	2.6	0
55 or over	.4	.7	0	.2	.9	1.0	5.3	.3

A larger proportion of female welders (7.5 percent) than of nonwelders (3.8 percent) tend to have low red cell levels, i.e., 36 volume percent or less of erythrocytes. It is noted in fig. 32 and tables 30, 32 that several female welders have hematocrit values of less than 33 volume percent.

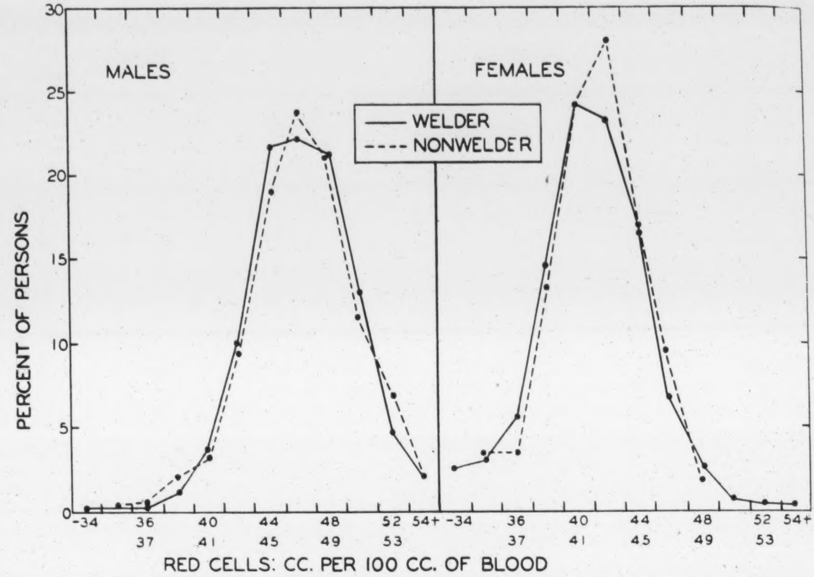

FIGURE 32.—Percentage distribution of the volume of packed red blood cells for shipyard workers according to sex and welding status.

Mean corpuscular hemoglobin concentration

The fact that the erythrocytes are not particularly lowered, even though hemoglobin values are, suggests that the blood of shipyard workers is hypochromic. This is also borne out by the mean corpuscular hemoglobin concentration which was determined according to Wintrobe's (*55*) formula:

$$\text{Mean Corpuscular Hemoglobin Concentration in Percent} = \frac{\text{Hb (gm. per 100 cc. blood)}}{\text{Vol. of packed RBC (cc. per 100 cc. blood)}} \times 100$$

Wintrobe reports 35 percent as mean corpuscular hemoglobin concentration (M. C. Hb C.) and the normal range as being 32 to 36 percent. The M. C. Hb C. of white male shipyard workers, however, averages 30.8 percent for welders and 32.2 percent for nonwelders. Some of the difference in range from that proposed by Wintrobe may be due to the techniques used in determining hemoglobin.

Although the blood of females contains less hemoglobin than that of males because the red blood cells are proportionately less numerous, the mean hemoglobin concentration of individual corpuscles is the same for normal males and females (*55*). Therefore, by using M. C. Hb C. as a measure, males and females can be legitimately compared.

TABLE 33.—*Mean corpuscular hemoglobin concentration for shipyard workers according to sex and color, by welding status*

Mean corpuscular hemoglobin concentration	Welders				Nonwelders			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
	NUMBER							
Total	2,238	1,159	146	933	711	432	13	266
21	0	0	0	0	2	0	0	2
22	2	1	1	0	0	0	0	0
23	2	0	1	1	0	0	0	0
24	7	3	0	4	1	1	0	0
25	16	5	2	9	1	0	0	1
26	47	17	2	28	17	4	1	12
27	99	42	10	47	26	8	0	18
28	263	111	15	137	78	46	5	27
29	319	138	27	154	85	41	1	43
30	482	224	28	230	133	73	2	58
31	346	211	22	113	124	87	3	34
32	267	148	16	103	103	62	0	41
33	216	150	9	57	77	60	1	16
34	95	54	9	32	33	23	0	10
35	36	25	2	9	17	13	0	4
36	15	10	1	4	8	8	0	0
37	10	8	0	2	2	2	0	0
38	11	10	0	1	1	1	0	0
39	1	0	1	0	2	2	0	0
40	1	0	0	1	1	1	0	0
Over 40	3	2	0	1	0	0	0	0
	PERCENT							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
21	0	0	0	0	0.3	0	0	0.7
22	0.1	0.1	0.7	0	0	0	0	.0
23	.1	0	.7	0.1	0	0	0	0
24	.3	.3	0	.4	.2	0.2	0	0
25	.7	.4	1.4	1.0	.1	0	0	.4
26	2.1	1.5	1.4	3.0	2.4	.9	7.7	4.5
27	4.4	3.6	6.8	5.1	3.7	1.9	0	6.8
28	11.8	9.6	10.3	14.7	11.0	10.6	38.4	10.1
29	14.3	11.9	18.5	16.5	12.0	9.5	7.7	16.2
30	21.5	19.3	19.2	24.7	18.7	16.9	15.4	21.8
31	15.5	18.2	15.1	12.1	17.4	20.1	23.1	12.8
32	11.9	12.8	10.9	11.0	14.5	14.4	0	15.4
33	9.7	12.9	6.1	6.1	10.8	13.9	7.7	6.0
34	4.2	4.6	6.1	3.4	4.6	5.3	0	3.8
35	1.6	2.1	1.4	1.0	2.4	3.0	0	1.5
36	.7	.9	.7	.4	1.1	1.9	0	0
37	.5	.7	0	.2	.3	.5	0	0
38	.5	.9	0	.1	.1	.2	0	0
39	0	0	.7	0	.3	.5	0	0
40	0	0	0	.1	.1	.2	0	0
Over 40	.1	.2	0	.1	0	0	0	0

It may be seen from table 33 that the blood of white females and Negro males is more hypochromic than that of white males. Differences in the M. C. Hb C. of welders and nonwelders are too slight to be of significance nor are there intershipyard differences of importance.

Methemoglobin

Investigations by Harrold, Meek, and McCord (*137*, *138*) have demonstrated methemoglobin in the blood of arc welders as well as in that of experimental animals exposed to arc-welding fume. They discuss methemoglobinemia as it is associated primarily with nitrous fumes, and they suggest that if cyanides are also produced in connection with arc welding the presence of methemoglobin may serve a "beneficent rather than detrimental purpose." Samples of blood which they collected during the period of welding work show 2.5 percent methemoglobin. In general, these authors report low methemoglobin values and they conclude that evidence for or against methemoglobin is inconclusive.

In the present investigation the methemoglobin content of the blood was determined photometrically (*56*) after treating the laked blood with potassium cyanide (see p. 36). The findings are not adequate to discuss in detail because of technical difficulties encountered in performing the test, but they do permit a few general comments.

No gross or clinical evidence of cyanosis was observed. Inasmuch as a blood level of about 10 percent methemoglobin (*139*) is necessary to make cyanosis readily detectable by clinical inspection, it may be assumed that this level of methemoglobinemia is not exceeded. In general, there is no particular difference between the methemoglobin blood content of welders and nonwelders. When the data are analyzed with specific reference to time on the job, however, welders are found to develop higher blood methemoglobin concentration the longer they are on the job each working day, whereas the blood of nonwelders shows no change. This difference in methemoglobin level of the welders is demonstrated by comparing a group of welders who had been on duty less than 2 hours with another group of welders who had been working more than 6 hours. The latter have significantly higher blood methemoglobin values than the former.

Horecker (*140*), by means of an accurate photocolorimetric method, found methemoglobin in two groups of normal subjects to be 0.5 and 0.7 percent, respectively. Paul and Kemp (*141*) also report values less than 0.5 percent for normal subjects and that it is present in the blood of almost all humans.

Red blood cell sedimentation rates

Red blood cell sedimentation rates were determined with Wintrobe hematocrit tubes by noting the percent of sedimentation in 1 hour and making corrections for anemia and anticoagulant as recommended by Wintrobe (55).

In general, only minor differences are found between welders and nonwelders (table 34). For instance, among males 56.9 percent of the welders (923) and 53.8 percent of the nonwelders (299) have an erythrocyte sedimentation rate of less than 10 mm. per hour and among females 65.4 percent of the welders (731) and 62.1 percent of the nonwelders (211) have a rate of less than 20 mm. per hour. In other words, a moderately high proportion of both sexes exhibit a "normal" sedimentation rate by Wintrobe's standard with a slightly greater percent "normal" among welders than nonwelders.

TABLE 34. —*Corrected sedimentation rates of shipyard workers according to sex and color, by welding status*

Corrected sedimentation rate	Welders			Nonwelders		
	White males	Colored males	White females	White males	Colored males	White females
	NUMBER					
Total	1,438	184	1,118	518	38	340
Less than 10	832	91	239	282	17	59
10 to 14	292	41	257	92	8	78
15 to 19	166	26	235	62	4	74
20 to 24	72	13	167	32	4	57
25 or over	76	13	220	50	5	72
	PERCENT					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Less than 10	57.9	49.4	21.4	54.4	44.7	17.3
10 to 14	20.3	22.3	23.0	17.8	21.1	22.9
15 to 19	11.5	14.1	21.0	12.0	10.5	21.8
20 ro 24	5.0	7.1	14.9	6.2	10.5	16.8
25 or over	5.3	7.1	19.7	9.6	13.2	21.2

When results from individual shipyards are reviewed for males, it is found that in three yards the larger percentage with abnormal RBC sedimentation rates, as defined above, is among the welders, in three it is among the nonwelders, and in one yard it was identical for these two occupational groups. When females are considered, it is found that in five of the seven shipyards studied the larger percentage of abnormal RBC sedimentation rates is among nonwelders.

Among males in all but one yard a higher proportion of nonwelders than of welders have RBC sedimentation rates exceeding 20 mm. per hour. These percentages by shipyard are:

Welding status	A	B	C	D	E	G	H
Welders	12.7	9.7	18.2	9.5	13.1	5.9	5.6
Nonwelders	13.3	11.8	12.8	12.0	26.6	15.3	20.4

The one shipyard with a higher proportion of welders with abnormal sedimentation rates was engaged in construction of small naval vessels affording exposure to zinc fumes; but the other Navy-contract yard, where zinc-coated metal was also used, shows the reverse finding. Hence, it would be unreasonable to conclude that metal fume fever or its prodromes are the cause of this aberrant finding. Moreover, women in both Navy-contract yards show a lower percentage of abnormal RBC sedimentation rates among welders than among nonwelders.

Among the 314 women welders reporting exposure to zinc fume, 37.9 percent have abnormal sedimentation rates but of 160 not so exposed the percentage is only 28.1. Likewise, among white male welders, 45.4 percent of the 515 working in a zinc exposure, and 39.3 percent of those not having this exposure show abnormal sedimentation rates. These differences have been tested and found to yield a critical ratio for females of 2.2, which is statistically significant, but the ratio for white males (1.6) is not considered significant.

As in the case of depressed blood pressure, anemia, and eye, nose and throat inflammations, the highest proportion of white male welders having abnormal RBC sedimentation rates was exposed to welding fume for 6 to 11 months. On the other hand, an ever increasing percentage of women show abnormal RBC sedimentation rates the longer they weld. Of the white male welders 45.1 percent have abnormal RBC sedimentation rates when they had welded 6 to 11 months, but the percentages were 44.8, 43.6, 41.2, and 36.5 for periods of welding less than 6 months, 12–23 months, 24–35 months and 36 or more months, respectively. Although the percentage of women welders having abnormal sedimentation rates is lower, it increases with length of service. For the work periods less than 6 months, 6 to 11 months, 12 to 23 months, and 24 to 35 months, the percentages were 28.5, 33.1, 38.3, and 39.7, respectively.

No significant differences in sedimentation rates of welders and nonwelders are found on attempting to ascertain the effect of hours on working shift, location of work place and time since partaking of food.

In general, abnormal sedimentation rates as an index of health status, show that welders and nonwelders do not differ with the possible exception of welders exposed to zinc oxide fume. Among these workers it seems that the abnormal rates are due to early effects of zinc exposure. No frank cases of zinc oxide fever were observed, but history of typical attacks within 6 months of the examination were obtained from 243 employees (see p. 81).

Basophilic stippling

After venipuncture, blood films were prepared by placing a drop of blood from the syringe on a microscope slide and spreading it promptly with another slide. Following the air drying of these films they were fixed in methyl alcohol. On return of the staff from the field, the blood films were stained by the Giemsa technic (*142*). As a rule 10,000 red blood cells were inspected under oil immersion for evidence of basophilic stippling, usually by selecting microscopic fields containing 200 red blood cells and noting the number of stippled cells encountered in 50 fields. The result was then recorded as number of stippled cells per million. Evidence of polychromasia, anisocytosis and poikilocytosis was also noted. A differential white count was made of every fifth blood film. Blood films were examined from the majority of workers in five yards, from 88 workers in yard A, but from none in yard C.

In most instances the basophilic granules are coarse though medium and fine granules are occasionally seen. If a considerable number of erythrocytes show basophilic stippling, a roughly proportioned increase in polychromasia and anisocytosis is also noted. As regards anisocytosis, the erythrocytes are generally smaller than normal. Poikilocytosis is minor and is noted in relatively few cases.

Stippled red blood cells are encountered infrequently in the blood of both welders and nonwelders. The blood of 60.2 percent of the white male welders and that of 62.0 percent of white male nonwelders shows less than 100 stippled cells per 1,000,000 red blood cells (RBC). Among white females a similar degree of stippled cells is found in the blood of 63.4 percent of the welders and 60.9 percent of the nonwelders (table 35).

A stippled count of 1,000 or more per 1,000,000 RBC is observed in 8.8 percent of all welders and 10.9 percent of all nonwelders. Males have slightly larger percentages than females. The highest stippled cell count is observed in a female welder whose pertinent clinical findings are previously summarized (table 30). In this instance the basophilia is probably attributable to the anemia from which she was suffering. Fig. 33 shows a welder-nonwelder comparison of stippled cells among males and females. The very slight difference between welders and nonwelders is quite evident, especially with regard to a stippled cell count of 500 or less per 1,000,000 RBC. A larger percentage of nonwelders than welders have a count of 1,500 or over.

Stippling (1,500 or more per 1,000,000 RBC) is observed in 9.8 percent of white male welders working less than 6 months. It seems to have decreased with increasing months of welding as for the periods of 6–11 months, 12–23 months, 24–35 months and 36 or more months, the percent of male welders showing this degree of stippling are 6.6, 6.7, 5.8, and 3.5, respectively. On the other hand, only 1.7 percent of female welders working less than 6 months show this degree of basophilic stippling yet, for the welding periods of 6–11 months, 12–23 months, and 24–35 months, the percentages were 4.1, 4.3, and 6.4, respectively.

Welding in the shops and "other locations" seemed to call forth more basophilic stippling among white males than welding on the platens, ways or outfitting docks. The lowest percentage of these individuals having 1,500 or more stippled cells per 1,000,000 is found among those working on the platens.

TABLE 35.—*Stippled cells per 1,000,000 red blood cells of shipyard workers according to sex and color, by welding status*

Stippled cells per 1,000,000 RBC	Welders				Nonwelders			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
	NUMBER							
Total	2,654	1,470	177	1,007	818	497	32	289
Less than 100	1,632	885	109	638	499	308	15	176
100–250	377	202	28	147	111	65	6	40
250–500	176	100	7	69	55	24	2	29
500–1000	235	139	16	80	64	40	4	20
1000–1500	94	49	10	35	31	22	3	6
1500–2000	38	26	1	11	21	13	0	8
2000–3000	51	37	3	11	14	9	1	4
3000–5000	40	28	2	10	16	11	0	5
5000 or over	11	4	1	6	7	5	1	1
	PERCENT							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 100	61.5	60.2	61.6	63.4	60.9	62.0	46.9	60.9
100–250	14.2	13.7	15.8	14.6	13.6	13.1	18.8	13.8
250–500	6.6	6.8	4.0	6.8	6.7	4.8	6.2	10.0
500–1000	8.9	9.5	9.0	7.9	7.8	8.1	12.5	6.9
1000–1500	3.6	3.3	5.6	3.5	3.8	4.4	9.4	2.1
1500–2000	1.4	1.8	.6	1.1	2.6	2.6	0	2.8
2000–3000	1.9	2.5	1.7	1.1	1.7	1.8	3.1	1.4
3000–5000	1.5	1.9	1.1	1.0	2.0	2.2	0	1.7
5000 or over	.4	.3	.6	.6	.9	1.0	3.1	.4

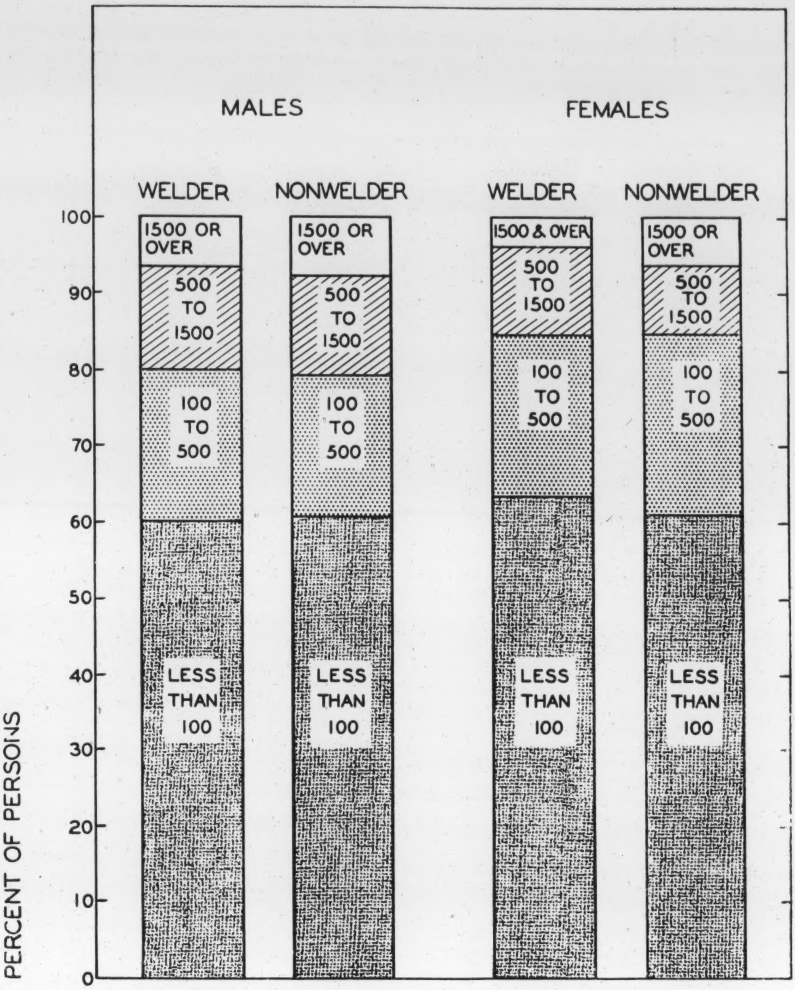

FIGURE 33.—Percentage of shipyard workers with specified number of stippled cells per 1,000,000 red blood cells according to sex and welding status.

Leucocyte differential count

During the early stages of examining the blood films for evidence of basophilic stippling it seemed that some slides showed an increased proportion of eosinophilic leucocytes. Thereupon, a plan was set up to perform a differential leucocyte count on every fifth slide examined for basophilic stippling. A total of 553 slides were examined representing 335 men (248 welders and 87 nonwelders) and 218 women (173 welders and 45 nonwelders).

The average blood picture may be summarized in round numbers as follows for welders and nonwelders:

Welding status	Percent of leucocytes						
	Total	Neutrophils	Staff and juveniles	Eosinophils	Monocytes	Lymphocytes	Other
Welders	100	46	10	2	5	36	1
Nonwelders	100	46	7	2	5	39	1

It is apparent that the lowered lymphocyte value of welders is accompanied by a small increase in staff and juvenile granulocytes. Persons diagnosed as suffering from the upper-respiratory symptom complex tend to have an increased proportion of granulocytes.

The percentage of lymphocytes in the blood of welders does not show statistically any significant difference from that of nonwelders. It was 35.5 percent for all welders and 38.5 percent for all nonwelders. There is more difference in the percentage of lymphocytes found in blood of welders than in that of nonwelders among white males than among white females. The average percentages for white males are 34.9 and 39.0, respectively, while for white females they are 35.8 and 35.9, respectively. These percentages of lymphocytes, though higher than usually reported, agree fairly well with values observed on truck drivers (*74*), control and exposed employees of a TNT bomb and shell loading plant (*119*), and those reported by Osgood (*143*). No significant differences were observed between shipyards.

Eosinophilia (i.e., more than 4 percent eosinophils) is more prevalent among welders (16.2 percent) than nonwelders (10.6 percent). It is observed in 18.2 percent of white male welders and in 15.0 percent of white female welders in contrast to 14.1 percent of white male nonwelders and 6.7 percent of white female nonwelders.

URINALYSES

Albuminuria

Studies (*144*) of adults have shown that a small proportion of persons have albuminuria even though they are not knowingly exposed to toxic hazards. Comparisons of rates, however, should not be made without allowance for differences in technic, age and other factors. Among male asbestos textile employees (*92*) (average age, 32 years), four percent were found to have albuminuria according to the heat-acetic acid test. This rate of albuminuria is about the maximum found in male industrial workers not exposed to toxic agents at work. On the other hand, a number of the heavy metals such as lead and mercury appear to be kidney irritants of such a degree as to provoke albuminuria in from one-fourth to one-third of the workers exposed (*78*, *109*). Comparison data on industrially employed females are scarce.

Among shipyard workers the overall rate for albuminuria was 1.7 percent. The percentage of white males, colored males, and white females having albuminuria was 1.3, 2.1, and 3.2, respectively. There was some difference between rates for the employees of various shipyards, the percentage by yard varying from 0 to 4.0 percent. There were only 31 individuals whose urine showed more than 2-plus albumin. The paucity of the more severe grades of albuminuria and the fact that its occurrence among male welders (0.9 percent) and nonwelders (0.8 percent) is about the same as reported in other studies of male industrial workers, makes it appear improbable that welding exposures, as encountered in the shipyards studied, precipitate albuminuria.

Glycosuria

Fifty-three of 2,574 white males (2.1 percent), 26 of 659 white females (3.9 percent), and 4 of 290 colored males (1.4 percent) were found to have glycosuria. These rates are higher than found on some industrial health surveys e.g., truck drivers (*74*) 1 percent, asbestos workers, 0.4 percent, and hatters' fur cutting (*145*) 1.6 percent, but lower than the 5.9 percent reported for white male insurance policy holders by Sydenstricker and Britten (*144*).

All 26 instances of glycosuria in females were only 1-plus reactions and 19 occurred in one yard. There is a possibility that difference in technic may have caused the large number in this yard.

Furthermore, frequent eating between meals was common at this shipyard and may have induced mild transitory glycosurias. Males showed the more severe grades of glycosuria (3-plus and 4-plus reactions) and they were observed only in yards which did not perform pre-employment examinations.

Glycosuria apparently has no relation to welding exposures as it occurred among white males in 1.9 percent of welders and in 2.9 percent of nonwelders, and among females in 4.4 percent of welders and in 3.1 percent of nonwelders.

BLOOD TEST FOR SYPHILIS

Tests employed

As part of the physical examination of shipyard workers blood tests for syphilis were made. Blood specimens were drawn by the examining physicians but the actual performance of the tests was done by the laboratories of the local boards of health or State health departments. The various tests used were as follows: The Kahn test exclusively in yards A and B; the Kline exclusion test on all sera, with Kahn and Kolmer tests on all positive and doubtful sera, in yard C; the Kahn test on all sera, with the Kolmer test on all positive and doubtful sera in yards D and E; the Eagle microflocculation test on all sera, with verification of positive and doubtful sera by the Eagle quantitative procedure, in yard G; and the Hinton test, exclusively, in yard H. In the interpretation of the results it should be kept in mind that various tests were used (*146*).

For statistical purposes, it seems desirable to compute all rates on the basis of the total persons with positive or doubtful serologic results. The inclusion of doubtful tests can be justified by the fact that an evaluation of serodiagnostic tests has shown less than 0.3 percent positive reactions in nonsyphilitic blood, whereas at least 10 to 15 percent of known syphilitic blood gave negative reactions (*147*). In one shipyard, where special attention was paid to a history of venereal infection, 75 percent of the doubtful cases gave a history of syphilis with inadequate treatment.

Syphilis rates

As shown in table 36 the syphilis rate per 100 shipyard workers was 4.11. This figure has little meaning unless broken down into its race and sex components which reveals a rate of 2.43 for white males, 20.61 for Negro males, and 3.78 for white females. A comparison of the syphilis rate for white male shipyard workers with that found in other studies made by the United States Public Health Service indicates a slightly lower incidence for Utah metal mine, coal mine and smelter workers (*72*, *73*, *75*), hatters (*145*), and storage battery workers (*109*). Truck drivers (*74*) had a higher rate. Other studies (*148*, *149*, *150*, *151*, *152*) including Negroes in varying proportions, yielded rates of 3 to 4 per 100, which, taking race and age into consideration, appear comparable to those found among shipyard workers. In the present study the rate per 100 for males aged 15–30 years was 1.95 for whites and 15.05 for Negroes, which is about the same as the white rate of 1.74 for men 21–35 years of age examined under the Selective Service Act, but lower than the rate of 25.2 for Negro selectees (*147*).

TABLE 36.—*Number of persons with positive blood test for syphilis per 100 shipyard workers according to age, by sex and color*

Age in years	Total	White males	Colored males	White females
	RATE PER 100 PERSONS			
Total	4.11	2.43	20.61	3.78
15–30	3.33	1.95	15.05	3.39
31–45	4.88	2.57	24.55	4.54
46 or over	3.70	2.92	16.67	*1.69*
	NUMBER OF PERSONS EXAMINED			
Total	4,500	2,591	296	1,613
15–30	1,830	822	93	915
31–45	2,130	1,324	167	639
46 or over	540	445	36	59

Note: Figures in italics based on less than five persons.

The syphilis rate for white male shipyard workers reached a maximum of 2.92 at 46 years of age or over. The highest colored male rate was 24.55 and the highest white female rate was 4.54, each in the age group 31–45 years.

In all three sex and race groups rates, according to marital status, were lowest for single persons and highest for widowed, divorced and separated persons, with married persons in the intermediate position. Exactly the same relative position of syphilis rates by marital status was found by Koch and Merrill, whose study covered labor union members of both sexes in northern California (*150*).

Regional differences in syphilis are of some interest. There are two ways this factor can be approached; namely, by the State of birth or by the State where working at the time of the physical examination. Since Negro males were located almost entirely in the South, attention will be directed towards white persons only. Male syphilis rates per 100 according to birthplace were as follows: South, 2.82, Northeast, 2.06, North Central, 1.67, and West, 1.53. Serologic reports for white selectees showed the South with highest rates and in decreasing order, the West, the North Central, and the Northeast. Rates according to the State where the shipyard was located were 3.35 in the South, 1.95 in the West and 1.64 in the Northeast. It was apparent from the figures that syphilis among white males is highest in the South, whether birthplace or residence is considered. Those born in the West have a low rate, but those who have migrated to the West have a high rate.

Among white females the rate by birthplace for the Northeast is 4.14 followed by 4.05 in the South, 3.39 in the North Central States and 3.33 in the West. Similar rates according to place of residence were 4.64 in the South, 3.24 in the West, and 3.04 in the Northeast. Apparently women who were born in the Northeast and were working elsewhere had higher syphilis rates than those who were born and worked in the Northeast.

DISCUSSION AND CONCLUSION

As indicated in the presentation of the environmental findings the principal air contaminants which were measured were total fume, iron, zinc and nitrogen oxides. It is these contaminants and their related clinical states which will be discussed here as the respiratory hazard of welding with coated electrodes.

Of the total fume samples taken in the hull, 14.2 percent exceed 100 mg./m.^{3}, while of those from the subassembly and from the shop, 9.4 percent and 6.4 percent, respectively, exceed 100 mg./m.^{3} The lowest means or average total fume concentration according to location of work was observed in the fabrication shop (31 mg./m.^{3}) and the highest was in the inner bottoms (87.5 mg./m.^{3}).

The measurement of total fume, provided an indirect measure of the air contamination arising out of the coating of electrodes used for shielded arc welding because the difference between the measured amounts of total fume and measured amounts of iron and zinc is mainly derived from the coating. These coatings introduce new chemical entities and vary the gaseous components of fume (*14*). Analysis of the total fume produced by welding on bare steel with coated electrodes yielded the following approximate composition: ferric oxide, 50 percent; titanium dioxide, 15 percent; silica, 8 percent; and a mixture of acid soluble metals such as magnesium, calcium, aluminum, manganese, chromium, copper and sodium, 24 percent. This finding agrees with Tebbins and Drinker's (*14*) observation that "about one-third to one-half of the fume from steel electrodes can be attributed to the coating."

Iron fume concentrations in excess of 20 mg. Fe per m.^{3} (30 mg./m.^{3} of ferric oxide) were found in all welding locations. In fact, iron fume concentrations exceeding this threshold were rather closely related to degree of confinement. For example, only 6 percent of all samples in the pipe shop in contrast to 43.5 percent of samples taken in the hull inner bottoms contained excessive amounts of iron.

Contamination of air with zinc was much more common in the United States Navy contract yards because much of the welding was performed on galvanized metal. In the United States Maritime Commission yards welding of galvanized pipe afforded the most common zinc exposure. The distribution of values, however, is quite similar for both United States Navy and United States Maritime Commission shipyards. In each instance the shops showed the highest proportion of samples below maximum allowable concentration of 12 mg./m.^{3} (15 mg./m.^{3} as zinc oxide) and may be related to greater ease of using local exhaust ventilation. The fore- and after-peaks on the hull and the fabrication shop were the only two locations where the mean or average values were less than the maximum allowable concentration. These averages or means are based on all samples in specified locations and do not represent weighted averages of an individual welder's exposure.

Tebbins and Drinker's (*14*) experiments under simulated industrial conditions indicated that the amount of oxides of nitrogen is small in comparison to fume particles of metallic oxides and salts. Only a small proportion of the 2,019 samples reported in this investigation exceeded 25 parts per million of nitrogen oxides. Even 25 parts per million is considerably lower than values (*137*, *138*) that have been proposed as being safe for industrial work. In no location did the mean value for the nitrogen oxides reach as much as 9 parts per million. The findings, therefore, amply confirm Tebbins and Drinker's observation that while using coated electrodes small amounts of nitrogen gases are evolved.

In general the concentrations of welding fume and gas observed in the environmental phase of the study were relatively low and the clinical findings were minimal. Within the welder group, it was impossible to demonstrate a high correlation between environmental and clinical findings. As regards environment, the nature of the welder's work often changes from day to day which makes it very difficult to estimate his weighted fume exposure. Some type of ventilation was available at all yards studied, although it was of variable adequacy; but even so, extreme degrees of atmospheric contamination as measured were quite infrequent. On the clinical side of the picture, many of the same factors leading to positive findings are operative in both welders and nonwelders. The similarity of the clinical findings for these two groups shown in table 37 and figure 34 emphasizes this point.

Figure 34 shows the percentage of white welders or nonwelders (controls) according to sex, having a certain diagnosis, finding or symptom. It will be noted that the rates for each condition listed are higher among males than among females except for overweight and headache. Moreover, if a relatively high percent of welders are positive for a condition, the percent positive among nonwelders is also high. Welders of both sexes, however, show slightly higher rates for upper respiratory syndrome, moderate or marked pharyngeal irritation, congested nasal mucous membrane, headache, heat rash and perforated ear drums. The differences between welders and nonwelders of each sex with respect to the anemic syndrome are negligible. Conditions which are of higher frequency among the nonwelders than welders, or which are of the same frequency, include exaggerated lung-field markings, musculoskeletal defects, gastrointestinal symptoms and acne.

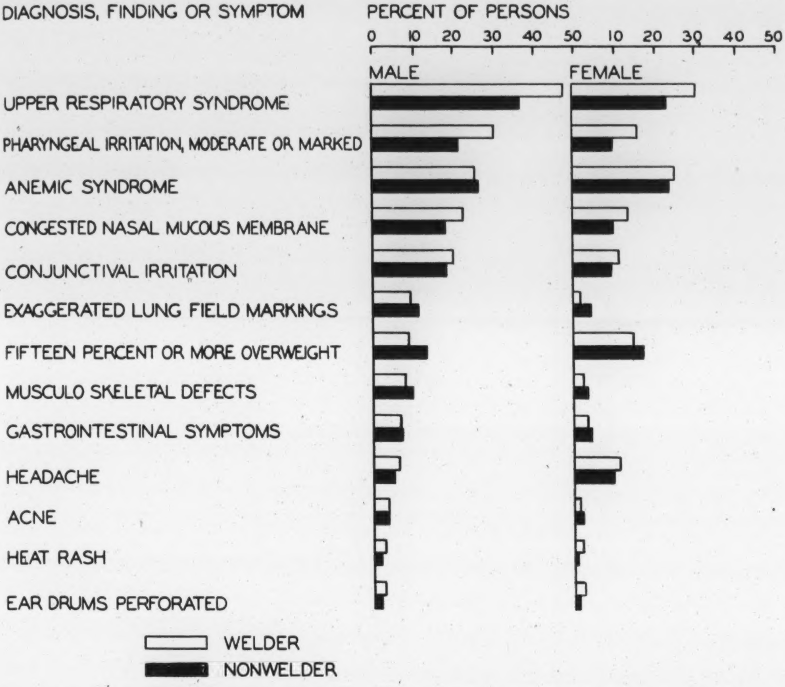

FIGURE 34.—Percentage of white shipyard workers having certain diagnoses, findings and symptoms according to sex and welding status.

Findings which approach or are of bare clinical significance for welders include respiratory symptom complex, arc welder's siderosis, cardiovascular hypotonia and welding burns or scars. Appraising the significance of these as well as other clinical findings demands caution because they are based on a single rather than serial or repeat examinations and because of the relatively short periods of exposure to arc welding hazards. Moreover, medical examinations were made only of workers on duty. This fact alone may be the principal reason for the failure to observe zinc oxide shakes in exposed welders even though medical histories showed this condition to be a relatively common occurrence among employees welding galvanized steel.

Inasmuch as iron oxide is the principal component of welding fume,

TABLE 37.—*Percentage of shipyard workers having certain diagnoses, finding, and symptoms according to sex and color, by welding status*

Diagnoses, findings and symptoms	Welders				Nonwelders			
	Total	White males	Colored males	White females	Total	White males	Colored males	White females
Diagnoses								
Anemic syndrome	26.3	25.2	41.0	25.0	26.1	26.0	50.0	23.2
Arteriosclerotic-hypertensive heart disease	4.4	5.4	12.1	1.6	13.2	17.9	19.6	5.2
Dermatoses:								
Acne	2.5	3.7	.4	1.3	2.9	3.8	0	1.9
Heat rash	2.0	2.7	0	1.2	1.0	1.7	0	0
Respiratory affections:								
Pulmonary tuberculosis	.8	.9	1.7	.7	3.1	3.0	8.9	2.4
Upper respiratory	40.5	47.7	39.7	30.3	30.9	36.4	32.6	22.4
Welder's siderosis	1.9	3.4	1.3	0	0	0	0	0
Findings								
Eye, nose and throat:								
Conjunctival irritation	15.9	19.9	12.2	11.0	13.9	17.9	8.7	8.5
Congested nasal mucous membrane	18.6	22.2	18.2	13.5	14.2	17.2	15.9	9.3
Pharyngeal irritation, moderate, marked	24.4	29.9	31.5	15.4	16.6	21.1	19.6	9.3
Heart or aorta enlarged	1.1	.9	7.3	.3	3.2	3.9	17.8	.3
Musculoskeletal defects	5.8	8.1	7.7	2.1	6.7	9.3	4.3	2.9
Oral hygiene, poor	1.1	1.0	1.3	1.1	1.8	1.9	6.8	1.1
Pulmonary calcification	7.6	7.3	6.4	8.4	8.7	10.8	4.4	5.9
Syphilis (positive blood test)	4.2	2.3	20.3	4.0	3.9	3.0	23.9	2.7
Symptoms								
Headache	7.6	5.8	6.5	10.3	6.8	5.7	4.3	8.8
Gastrointestinal	5.1	6.6	5.2	2.9	4.5	5.7	0	3.2
Upper respiratory	31.8	36.1	27.3	26.5	21.3	24.3	17.4	17.3

it may seem surprising that so few welders had arc welder's siderosis.

By including other findings in addition to the X-ray reading, arc welder's siderosis was diagnosed in 61 (3 percent) of the male welders and in 10 (3 percent) having mixed exposure. None of the cases exhibited the clean-cut nodulation shown in the more advanced cases which have been reported by Sander (*36*). However, this is to be expected as the observed exposures were short, whereas according to Sander (*37*) 6 to 10 years of steady confined and poorly ventilated work is usually necessary for the disease to become clearly manifest. It may be for a closely related reason that siderosis has not been demonstrated in relatively short-term animal experiments (*20*, *53*). Based on autopsy information available to date, Sander favors the term "iron pigmentation of the lungs" (*153*) to describe a simple iron deposition without proliferative pulmonary fibrotic changes. He adds that this term will avoid creating the impression that a silicious factor is involved when "siderosis" is used. His point is well taken, particularly from the viewpoint of many older pneumoconiosis reports in the literature which discuss "siderosis" whereas in modern usage a "sidero-silicosis" would be meant.

It will be noted that the term "arc welder's siderosis" has been used chiefly because it will allow for broader implications. It seems that Sander's justification for using the term "iron pigmentation" rests on only one autopsy report (*22*) and in this instance the welder's major welding fume exposure had occurred while using bare electrodes. Until more is known about the action of nonferrous constituents of welding fume in inducing lung changes, it seems more prudent to use the term "arc welder's siderosis," particularly inasmuch as the operators observed were using coated electrodes.

The findings relative to pulmonary tuberculosis did not appear to indicate that welding fume exposure predisposes to that disease. This observation is in agreement with other investigators.

A total of 496 shipyard workers, mostly welders, gave a history of having had typical attacks of metal fume fever. About two-thirds of these were employees in Navy-contract yards where most of the welding was on galvanized metal. More than half of the attacks had occurred a month or more before examination. The majority of instances in United States Maritime Commission shipyards were among the welders of galvanized pipe. It is noteworthy that a history of metal fume fever was observed only among employees exposed to zinc—yet many welders exposed to mainly iron fume had never suffered typical attacks of metal fume fever. This strongly suggests that iron or iron oxide fume in the concentrations inhaled by shipyard welders does not give rise to typical metal fume fever. Moreover, it would seem that other metal components of fume derived from the coating such as magnesium, aluminum and manganese were in concentrations too low to give rise to the symptom complex. It has never been shown with any degree of certainty whether or not iron oxide by itself can induce metal fume fever.

The detailed blood study failed to reveal any appreciable difference between welders and nonwelders. There was evidence of anemia in both welders and nonwelders, but special studies such as basophilic stippling and leucocyte differential counts could not be related to such environmental factors as lead or zinc exposure. There was, however, some evidence to suggest that persons doing galvanized welding and exposed to zinc fume were more likely to have abnormal red blood cell sedimentation rates than those not so exposed. The blood studies, moreover, failed to reveal any marked blood dyscrasias such as reported by some authors (*47*, *49*), and hence the findings are in agreement with Feil's (*48*) observations. The definite anemias which were observed in both welders and nonwelders seemed to be due mainly to nutritional deficiency or hemorrhage from such causes as menorrhagia, hemorrhoids and peptic ulcer.

Welding burns or scars are intimately related to arc-welding operation. These lesions are only rarely disabling and there is good reason to believe that they can be prevented by adequate safety practices.

The upper respiratory symptom complex essentially included pharyngitis, rhinitis, sinusitis and sometimes tracheobronchitis. It was usually mild and nondisabling and was productive of signs and symptoms indistinguishable in most respects from upper respiratory affections induced by infectious, allergic or other irritant toxic agents. The pharyngitis of welders was of greater severity than that experienced by nonwelders. However, among tobacco-using welders pharyngitis was more severe than among nontobacco-using welders. It was manifested by inflamed lymphoid nodules on the posterior pharyngeal wall, moderate vascular congestion and muco-purulent discharge. The infrequency of nasal septum perforations shows that the action at the portal of entry is not corrosive, as close study of such cases revealed other causes for the perforations.

After allowance is made for other infectious, allergic or chemical factors in etiology, it seems safe to conclude that a major portion of the upper respiratory findings of welders in excess of that occurring among nonwelders is chargeable to welding exposure. As shown in figure 34 in the case of respiratory symptom complex among white males, this amounts to 11.3 percent. These observations certainly fail to disclose an irritative action of welding fume affecting all operators which suggests that the observed inflammatory changes arise mainly from infectious foci and other sources although the inflammation is possibly aggravated by exposure. Investigators both here and abroad have reported evidence of upper respiratory tract irritation and the consensus is that this inflammation subsides without residuals upon removal of the individual from offending fume either by his transfer or by improved ventilation. It is, however, impossible to state whether this is due to only gaseous component, particulate component or a combination of both.

As welders were found to have slightly lower blood pressure than workers who were not exposed to the welding environment, it seems that factors associated with the welding exposure depress the blood pressure. The difference between welders and nonwelders was too small to make a clinical impression on the examining physician at the time of the individual examination, hence no clinical laboratory tests were made to establish or identify the depressor or antipressor agents. The period of greatest depression occurred among welders, for all ages, who had worked either less than 6 months or from 6 months to 1 year. A similar phenomenon was observed by Sievers, et al. *(119)* in their study of TNT workers.

The environmental results pertaining to oxides of nitrogen are of interest in considering these blood pressure effects, inasmuch as is known that nitrites are formed after absorption of nitrogen oxides (nitric vapors) (*154*). Certain formulae have been advanced to estimate the nitrite effect assuming partial or complete absorption of the toxic gas in the lung (*25, 52*); estimates based on these formulae indicate welders in this study exposed to 25 parts per million could be receiving approximately a therapeutic dose of 60 mg. of sodium nitrite per hour. But the average nitrous fume exposure was less than one-fourth of this concentration. Although the minimal clinical effect observed may possibly be due to this low dosage of effective nitrite, further research is needed to appraise the influence of such other factors as high environmental temperatures, histamine-like substances and fatigue.

Based on the observations of this study, it may be concluded that the gases and fumes generated by welding of mild steel as practised in Maritime and certain Navy contract shipyards induces an upper respiratory symptom complex and other possibly related changes such as are welder's siderosis and a slightly lowered blood pressure. It would seem that these alterations as demonstrated statistically are of clinical importance so far as temporary disability, differential diagnosis, treatment and prognosis are concerned; the observations, however, indicate that these changes have not led to permanent disabling residual effects. Safety measures in the form of eye and skin protection and ventilating practices have undoubtedly aided materially in keeping all industrially related clinical findings at low levels of significance.

SUMMARY

This bulletin presents the results of investigations relating to the health of shipyard workers carried out during 1944 in seven shipyards located on the Atlantic, the Gulf and the Pacific Coasts. In August 1943, the Industrial Hygiene Division of the United States Public Health Service was requested to cooperate with the United States Maritime Commission in a study of the health of shipyard workers with special attention to welders. The immediate reason for this request was the increasing number of complaints of respiratory symptoms from shipyard workers.

Medical examinations were made of 4,650 individuals, 63 percent of whom were males and 37 percent of whom were females. Of the males 90 percent were white and 10 percent were colored. No colored females were included. Since emphasis was placed on the health of welders, persons employed in the welding craft represent almost 70 percent of the total.

The age distributions of the male and female shipyard workers examined followed the usual pattern for industrial groups, namely, females were younger than males with very few over 40 years of age. Doubtless because of inductions into the armed forces the age distribution for males was irregular. The number in the age group 20 to 24 years was lower than the number in the immediately preceding or following age groups. The maximum number in any age group was found at 30–34 years for males and 20–24 years for females. Welders of each sex were found to be much younger than nonwelders of the same sex.

An indication of the extent of migration in the war and pre-war years is afforded by studying the State where shipyard workers were born as compared with the State where they were residing when interviewed for this study. The geographical location of the shipyard appeared to be the most important factor related to mobility. In the Southern shipyards more than nine-tenths of the workers were born in the same or adjacent State, while in some shipyards on the Pacific coast less than 11 percent were so born. Long distance migration was common in the West, but was rare in the South and East. Less than 5 percent of the shipyard workers were foreign born.

Although shipyard workers were located in war-crowded areas it appears that only relatively small numbers (14.4 percent) were living in tourist camps, trailers, rooming houses or dormitories. The majority (77.1 percent) were living in a normal family group, i.e. with relatives in house or apartment. A larger proportion of females than white males were not living with their families, 24.2 percent as compared with 14.7 percent.

Questions relating to personal habits indicated that approximately four-fifths of the males and one-half of the females used tobacco in some form. Headache remedies, laxatives, digestive aids, tonics and other remedies were most commonly reported used by colored males, and least commonly reported by white males. Regional differences were marked with a much larger use of drugs by workers living in the South. The percentage of workers who reported taking daily baths was related very closely to the average temperature at the time of the survey. For white males the percentage varied according to shipyard from 11.3 to 89.0 percent.

The past occupational experience of shipyard workers showed great diversity. Compared with employed males in the general population a smaller proportion came from the manufacturing industry. Shipyard work was most attractive to persons who formerly had been engaged in farming and those in the trade or service industries. In four shipyards more than half of the women had not previously been gainfully employed. For both sexes the percentage who had never worked or who had farmed only was much greater in the southern shipyards than on the West or North Atlantic coasts. Slightly more than a tenth of the males reported having worked at some time in dusty occupations, principally mining or quarrying.

Among the white male shipyard welders 11.8 percent had worked at that trade previously. Because of the intermittent character of most nonshipyard welding no conclusions could be drawn regarding intensity of exposure of these individuals. In no shipyard did as much as 6 percent of the welders exceed 3 years of shipyard welding experience.

For purposes of analysis the workers were divided into three groups according to present shipyard occupation, namely, welders, nonwelders and persons with mixed exposures. More than four-fifths of the welders were either doing or learning to do production arc-welding. Other welding occupations of some importance were leadermen, pipe welders, welder helpers and "Unionmelt" operators.

Nonwelders covered a wide range of occupations because they were chosen to represent as nearly as possible the economic status and skill requirements of welding without exposure to welding fumes. The principal trades represented were electricians, machinists, and sheet metal workers.

Persons were placed in the mixed exposure group because they id not have a clearly defined welding or nonwelding work history. They had some exposure other than that directly associated with their present job which might influence the medical findings.

The ship construction procedures which are common in all types of shipyards were described and the relationship between the various departments was explained. Brief descriptions were given of the functions of the principal crafts.

Ventilation in shipbuilding was approached from the viewpoint of an ideal system rather than attempting to describe the great variety of systems in use at the time the study was made. The components of an efficient temporary ventilation system were described, including such matters as ducts and fittings, standard nomenclature, access holes, and material control procedures.

Iron and total fume determinations were made on 1,767 welding fume samples taken in eight shipyards including the seven where medical studies were carried out. Zinc and lead analyses were carried out on 278 and 25 of these samples, respectively. For classification purposes the welding locations at which these samples were collected were arranged into 3 major and 10 minor groups, according to their degree of confinement.

The highest average iron and total fume concentrations were found, as was to be expected, in the most confined welding locations. Several locations provided a zinc concentration in excess of 12.0 mg./m.^{3} (or 15.0 mg./m.^{3} expressed as zinc oxide). Iron fume concentrations in excess of 20 mg. Fe per m.^{3} (30 mg./m.^{3} expressed as ferric oxide) were found in all welding locations. Excessive iron fume concentrations were found to be rather closely related to the degree of confinement of the welding location. Excessive amounts of iron were contained in from 6 percent of all the samples in the pipe shop to 43.5 percent in the hull inner bottoms.

Analysis of welding fume samples showed the following approximate composition of the fume produced from welding on bare steel with coated electrodes: ferric oxide, 50 percent; titanium dioxide, 15 percent; silica, 8 percent; and a mixture of acid-soluble metals such as magnesium, calcium, aluminum, manganese, chromium, copper and sodium, 24 percent.

More than half the gas samples from seven shipyards were found to contain less than 5 parts per million of nitrogen oxides. The highest proportion of samples exceeding 25 parts per million of nitrogen oxides was 10.4 percent on the subassembly inner bottoms, followed by 5.8 percent on the top deck and outside shell of the hull and 4.5 percent in the pipe shop. Less than 1 percent of the samples exceeded 25 parts per million in the fore- and after-peaks of the hull and the subassembly, in the superstructure and the flat sheets of the subassembly, and in the fabrication shop. In no location did the mean for the nitrogen oxides samples reach as much as 9 parts per million.

A history of attacks of metal fume fever was obtained principally from United States Navy-contract yards where a large percentage of welding is done on galvanized metal. Most of the workers reporting metal fume fever in United States Maritime Commission-contract yards had been welding on galvanized pipe. The attacks described in the case histories followed the usual pattern for metal fume fever, although the severity varied considerably.

The weight of shipyard workers when related to height and age is about the same as for other industrial workers. In general, southern shipyards show more males underweight than do the northern or western yards.

As has been noted in other studies females in general had poorer vision than males of the same age. Welders had approximately the same visual acuity as nonwelders when age was held constant. In contrast to the usual finding, male shipyard workers show better vision 30–39 years of age than those under 30 years of age. This reversal of the age trend may be related to a more thorough screening of younger men for service in the armed forces.

Characteristic occupational stigmata of welders are slag burns or scars. They were most commonly observed on the antero-lateral aspect of the elbow, but were also found around the ankles, along the belt line of the abdomen and the episternal region. In a group where special attention was paid to finding slag burns or scars their presence was observed in about one-fourth of the welders.

Slightly more miliaria, or heat rash, was observed among welders than nonwelders, possibly because of the necessary protective clothing the former group wore. Acne vulgaris was almost equally common among welders and nonwelders.

In the medical examination special attention was paid to the upper respiratory tract since it was thought that welding fume might cause irritation. It is difficult, however, to distinguish the effects of welding fume from effects of an infectious or allergic nature.

Conjunctival irritation was slightly more prevalent among welders than nonwelders for both sexes. Compared with other male industrial workers conjunctivitis among shipyard workers appears not to be above the average. Flashed eyes (actinic conjunctivitis) was found infrequently among shipyard workers at the time they were examined although many reported having been affected at some time in the past.

Examination of the medical record of 40 white men showing perforation of the ear drum indicated in only one instance that this condition was due to a welding injury from hot slag or molten metal.

Inflammation of the nasal mucous membrane as evidenced by congestion was slightly more common among welders than nonwelders in each shipyard. The degree of inflammation rarely progressed to ulceration. Perforations of the septum were rare.

Pharyngitis was observed more frequently than other respiratory findings and was of greater severity among welders than among nonwelders. It was observed less often among females than among males.

There was a greater prevalence of nasal congestion, pharyngitis (moderate and severe) and upper-respiratory symptoms among male tobacco users than among nontobacco users. This was observed for welders and nonwelders with a larger increase among tobacco-using welders.

No important differences were observed in the lung-field markings in the chest X-rays of welders and nonwelders. Previous occupation, sex and age were more important than welding status in determining the degree of lung-field markings found. Among males the proportion showing second degree linear and granular markings was greater for welders among persons under 45 years of age and greater for nonwelders above this age. A slight increase in exaggerated markings was observed as months of welding experience increased. In each welding experience group there was a greater proportion with second degree linear or granular markings among those persons with previous industrial employment than among those with a history showing no industrial employment. By including other findings in addition to the X-ray reading, arc welder's siderosis was diagnosed in 61 (3 percent) of the male welders and in 10 (3 percent) with mixed exposure.

Roentgenographic evidence of either hilar or parenchymal calcifications, or both, was noted in 371, or 8.1 percent, of all shipyard workers. There was little sex difference. By location of shipyard the highest prevalence rate was on the Gulf Coast and the lowest rate was in New England. When the data were examined as to place of birth, it was found that the highest percentage of persons showing pulmonary calcifications was in the interior of the country. Only 5.2 percent of the male shipyard workers who had been engaged in welding previous to their shipyard employment showed pulmonary calcifications.

The percentage of shipyard workers with reinfection tuberculosis was 1.3 percent, or approximately the same as among other industrial populations. However, the proportion of moderately or far advanced cases was lower than usual, which may be due to screening out those more seriously affected. Tuberculosis was more prevalent among nonwelders than welders irrespective of sex or race. Possibly selective factors were in operation which made it more likely that persons who knew they had had tuberculosis would choose a shipyard occupation other than welding.

The shipyards which included pre-placement examinations in their health maintenance program had a smaller proportion of tuberculous personnel.

Arteriosclerotic-hypertensive heart disease was observed among 17.9 percent of the white male nonwelders and among 5.4 percent of the white male welders. Colored male welders and white female welders showed a similar favorable trend. This difference cannot be attributed to age alone but must be explained by other factors, possibly selection by the shipyard employees themselves of type of work performed. Those with arteriosclerotic-hypertensive heart disease might choose the lighter more sedentary work which characterizes the nonwelder group.

Rheumatic heart disease was found among 1.6 percent of the male shipyard workers. When classified by place of birth the highest rates appeared in the New England, East North Central and Mountain regions. A slightly downward trend with advancing age was discernible.

A distribution by age of mean systolic blood pressure values for welders compared with the values for nonwelders showed that in each sex and color group welders have a lower mean systolic blood pressure. A smaller but analagous difference is noted between welders and nonwelders on comparing mean diastolic pressures. This depression of blood pressure among welders is a group phenomenon not related to age. A similar comparison remains when only workers free of hypertension are considered.

It was observed that for white male welders the mean systolic blood pressure was lowest for those with less than 12 months' experience in shipyard welding. The findings suggest the presence among welders of depressor or antipressor agents or factors as yet unidentified.

Approximately 15 percent of the shipyard workers had one or more gross physical handicaps or abnormalities, excluding tuberculosis, heart disease and syphilis. Musculoskeletal defects were the most common handicaps. They involved orthopedic defects, amputated members, diseases of the joints, and neurologic residuals of poliomyelitis or hemiplegias. One examiner who paid particular attention to the presence or absence of hernias found 3.9 percent among the males he examined.

As welding fumes may potentially produce anemia, careful attention was given to the blood picture. Hematologic tests included the determination of cell volume (hematocrit), hemoglobin, sedimentation rate of erythrocytes and study of blood films for evidence of basophilic stippling. The results of these tests indicated no appreciable difference between welders and nonwelders.

There was, however, some evidence to suggest that persons doing galvanized welding and exposed to zinc fume are more likely to have abnormal sedimentation rates than those not so exposed. This find- may be interpreted as a prodrome of a zinc chill.

A differential leucocyte count was made on every fifth slide examined for basophilic stippling. The percentage of lymphocytes in the blood of welders does not show statistically any significant difference from that of nonwelders.

The prevalence of albuminuria and glycosuria among shipyard workers was about the same as that among industrial workers not exposed to toxic agents. Welder and nonwelder differences were not appreciable.

The syphilis rate per 100 shipyard workers, based largely on the serodiagnostic test, was 2.43 for white males, 20.61 for Negro males, and 3.78 for white females. In all three groups rates according to marital status were lowest for single persons, and highest for widowed, divorced and separated persons, with married persons in the intermediate position. Regional differences show that syphilis among white males and among white females is highest for those working in southern shipyards and lowest for those working in the northeastern shipyards.

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Mr. E. G. Tracy, as Mr. Ring's assistant, contributed materially to the conduct of the study and later as Director of Division of Shipyard Labor Relations, United States Maritime Commission, reviewed and criticized the final draft of the manuscript.

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APPENDIX

TABLE 38.—*Age distribution of shipyard workers according to sex and color, by shipyard*

Age (years)	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES							
Total	2,652	237	378	403	525	373	298	438
15–19	233	40	68	56	39	13	11	6
20–24	168	29	36	33	21	13	13	23
25–29	448	40	75	58	79	76	42	78
30–34	624	46	90	88	120	84	77	119
35–39	434	38	53	67	82	65	54	75
40–44	289	18	28	41	63	45	26	68
45–49	161	16	10	18	45	31	17	24
50–54	129	7	10	15	34	13	26	24
55–59	76	2	4	13	21	12	17	7
60–64	43	1	1	9	11	11	5	5
65 or over	47	0	3	5	10	10	10	9
	COLORED MALES							
Total	298	43	65	-------	74	98	3	15
15–19	22	7	5	-------	2	8	0	0
20–24	26	5	3	-------	5	8	1	4
25–29	46	8	9	-------	10	16	0	3
30–34	68	11	14	-------	19	21	0	3
35–39	66	7	21	-------	21	14	1	2
40–44	34	1	3	-------	10	19	0	1
45–49	23	3	6	-------	7	5	1	1
50–54	6	1	2	-------	0	2	0	1
55–59	5	0	2	-------	0	3	0	0
60–64	1	0	0	-------	0	1	0	0
65 or over	1	0	0	-------	0	1	0	0
	WHITE FEMALES							
Total	1,700	180	247	258	291	227	196	301
15–19	128	32	29	4	16	11	20	16
20–24	454	47	75	70	61	63	56	82
25–29	382	42	54	63	69	49	46	59
30–34	328	31	48	54	65	47	30	53
35–39	231	19	25	46	47	28	23	43
40–44	117	5	12	16	23	14	10	37
45–49	41	2	3	5	8	11	3	9
50–54	15	2	1	0	2	3	5	2
55–59	4	0	0	0	0	1	3	0
60–64	0	0	0	0	0	0	0	0
65 or over	0	0	0	0	0	0	0	0

TABLE 39.—*Distribution of male shipyard workers by percent weight deviation from the average weight of men of their height and age according to life insurance tables, by color and shipyard*

Percent weight deviation from average	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES							
Total	2,550	232	372	389	500	351	283	423
−35 to −45	1	0	0	0	0	0	0	1
−25 to −35	15	0	4	4	2	3	1	1
−15 to −25	235	23	54	55	35	33	17	18
− 5 to −15	680	82	115	114	134	93	69	73
±5	845	81	107	109	168	118	105	157
+ 5 to +15	458	28	64	58	98	58	55	97
+15 to +25	214	10	21	31	42	29	27	54
+25 to +35	64	4	5	6	15	14	5	15
+35 or over	38	4	2	12	6	3	4	7
Mean	+0.12	−2.2	−2.8	−1.3	+0.8	+0.1	+1.2	+3.8
Standard deviation	12.9	12.0	12.3	14.2	9.5	13.1	12.1	12.6
	COLORED MALES							
Total	294	43	65	------	73	96	3	14
−15 to −25	6	1	2	------	1	0	0	2
−5 to −15	61	6	21	------	11	18	3	2
±5	121	20	23	------	26	45	0	7
+ 5 to +15	64	11	9	------	23	20	0	1
+15 to +25	28	3	8	------	8	8	0	1
+25 to +35	11	2	1	------	2	5	0	1
+35 or over	3	0	1	------	2	0	0	0
Mean	+3.1	+3.5	+1.1	------	+5.5	+3.4	−10.0	−0.7
Standard deviation	11.3	10.3	12.0	------	11.6	10.4	0	13.0

TABLE 40.—*Percentage of white workers with normal vision (20/20) in both eyes according to age and sex, by shipyard*

Age (years)	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES							
Total	51.1	54.2	60.6	48.9	53.7	50.7	50.2	40.2
Under 25	57.8	60.9	56.3	57.6	69.5	46.2	54.2	44.0
25–29	55.8	59.0	68.5	63.2	51.3	53.3	45.2	48.5
30–34	52.6	54.3	60.9	41.8	52.5	61.7	59.2	41.8
35–39	50.5	44.7	63.5	50.0	51.2	55.7	59.3	32.4
40–44	49.5	55.6	64.3	48.6	52.5	53.5	30.8	43.9
45–49	50.3	43.8	55.6	38.9	62.2	41.9	64.7	38.1
50 or over	34.1	40.0	37.5	26.3	43.8	25.0	36.2	27.0
	WHITE FEMALES							
Total	49.1	47.5	57.9	51.0	49.3	53.3	44.4	40.2
Under 25	57.0	57.7	67.3	66.2	52.0	58.1	41.1	45.8
25–29	43.8	41.5	56.6	48.3	36.2	51.1	42.2	35.2
30–34	44.9	32.3	45.8	38.5	49.2	57.4	41.4	42.9
35–39	48.3	52.6	48.0	52.3	52.2	42.9	57.1	40.4
40–44	52.1	40.0	54.5	50.0	68.2	42.9	50.0	48.8
45–49	35.8	0	*33.3*	0	71.4	63.6	*33.3*	22.7
50 or over	52.4	0	*100.0*	0	*50.0*	*25.0*	62.5	60.0

Note: Figures in italics were based on less than five persons.

Table 41.—*Type of lung-field markings observed in chest roentgenograms according to sex and color, by shipyard*

Type of lung-field markings	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES							
Total	2,595	222	374	393	518	368	292	428
Normal	1,583	120	257	275	337	237	185	172
First-degree linear	718	61	82	90	123	102	74	186
Second-degree linear	175	32	25	15	34	10	17	42
First-degree granular	68	7	9	7	10	8	7	20
Second-degree granular	13	1	0	1	4	1	3	3
Nodular and conglomerate	1	0	0	0	0	1	0	0
Tuberculous	37	1	1	5	10	9	6	5
	COLORED MALES							
Total	297	43	65	-------	74	97	3	15
Normal	229	30	55	-------	61	74	1	8
First-degree linear	50	11	7	-------	9	18	1	4
Second-degree linear	6	1	0	-------	3	1	0	1
First-degree granular	3	1	1	-------	0	1	0	0
Second-degree granular	1	0	0	-------	0	0	0	1
Nodular and conglomerate	0	0	0	-------	0	0	0	0
Tuberculous	8	0	2	-------	1	3	1	1
	WHITE FEMALES							
Total	1,671	179	239	248	288	227	192	298
Normal	1,377	134	210	227	241	199	170	196
First-degree linear	259	35	24	21	42	23	17	97
Second-degree linear	16	8	2	0	1	1	1	3
First-degree granular	2	0	0	0	1	0	1	0
Second-degree granular	0	0	0	0	0	0	0	0
Nodular and conglomerate	0	0	0	0	0	0	0	0
Tuberculous	17	2	3	0	3	4	3	2

TABLE 42.—*Mean systolic and diastolic blood pressures of shipyard workers, according to sex, color and age, by shipyard*

Age (years)	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES—SYSTOLIC BLOOD PRESSURE							
Total	125.5	124.2	120.3	122.9	127.6	126.5	125.7	129.8
Under 25	117.2	118.9	115.2	112.7	118.3	123.2	117.5	126.8
25–29	123.0	121.3	119.0	121.6	124.0	125.5	122.4	125.6
30–34	123.4	119.0	119.8	120.6	126.1	122.7	124.4	127.2
35–39	126.2	130.8	122.8	124.4	126.7	124.5	122.4	131.6
40–44	126.5	132.5	122.8	121.7	126.5	123.6	125.6	131.6
45–49	131.2	128.2	123.4	131.0	131.9	132.3	126.4	137.5
50 or over	139.9	149.7	145.4	146.0	140.0	138.9	136.2	135.7
	DIASTOLIC BLOOD PRESSURE							
Total	78.3	77.7	76.1	77.8	79.4	78.6	77.0	79.9
Under 25	72.2	73.0	71.7	70.1	72.6	76.5	71.2	74.4
25–29	76.7	76.3	76.2	77.1	78.0	77.5	75.1	77.4
30–34	77.4	75.6	76.3	78.5	78.3	78.8	75.8	77.4
35–39	79.9	82.6	78.1	80.1	80.4	78.6	76.7	82.3
40–44	79.6	84.7	79.2	77.3	79.5	75.4	78.6	83.0
45–49	82.4	80.4	79.6	83.6	83.8	82.7	77.9	84.4
50 or over	84.7	90.0	88.1	87.8	84.6	84.2	81.7	83.6
	COLORED MALES—SYSTOLIC BLOOD PRESSURE							
Total	127.2	125.6	127.2	------	128.0	128.0	97.3	128.5
Under 25	121.4	120.8	124.5	------	117.7	121.1	*92.0*	*131.5*
25–29	127.0	130.5	129.0	------	124.8	127.2	0	*118.7*
30–34	126.7	127.5	127.4	------	124.0	127.1	0	*134.0*
35–39	125.6	126.3	124.4	------	128.6	124.4	*102.0*	*127.0*
40–44	129.2	*112.0*	*110.7*	------	138.8	128.0	0	*128.0*
45–49	136.1	*126.0*	138.5	------	136.9	150.6	*98.0*	*112.0*
50 or over	138.8	*132.0*	*138.0*	------	0	138.7	0	*150.0*
	DIASTOLIC BLOOD PRESSURE							
Total	80.6	80.4	81.0	------	82.1	80.0	63.0	81.3
Under 25	73.3	70.5	75.0	------	76.1	71.3	*60.0*	*84.5*
25–29	78.3	80.9	79.9	------	76.9	78.0	0	*72.7*
30–34	82.6	86.5	82.8	------	81.4	81.0	0	*85.3*
35–39	81.2	84.4	80.8	------	81.8	81.3	*66.0*	*76.0*
40–44	84.3	*84.0*	*72.7*	------	89.4	83.7	0	*80.0*
45–49	84.0	*84.0*	85.8	------	87.6	83.0	*60.0*	*76.0*
50 or over	88.1	*85.0*	*88.5*	------	0	86.6	0	*100.0*
	WHITE FEMALES—SYSTOLIC BLOOD PRESSURE							
Total	116.6	116.9	113.9	115.1	117.1	116.3	116.1	120.3
Under 25	113.2	114.0	110.9	112.8	113.9	113.3	112.3	115.6
25–29	114.9	115.8	112.0	114.1	115.4	115.5	114.2	116.9
30–34	116.2	117.5	115.8	112.7	116.7	114.3	114.9	121.3
35–39	119.9	124.3	120.8	117.5	119.4	117.8	114.6	125.0
40–44	125.9	133.2	124.4	124.3	124.3	120.9	129.0	128.1
45–49	125.7	*110.0*	*112.7*	136.4	120.6	128.5	*123.0*	129.6
50 or over	147.6	*141.0*	*140.0*	0	*150.0*	*147.0*	152.3	*138.0*
	DIASTOLIC BLOOD PRESSURE							
Total	74.2	75.4	73.7	74.6	74.7	72.7	70.8	76.3
Under 25	71.5	74.6	71.6	73.8	71.6	69.4	67.2	72.1
25–29	72.7	73.0	71.9	73.1	73.1	72.2	70.3	74.8
30–34	74.7	75.3	75.3	74.5	75.7	72.3	69.8	77.7
35–39	77.2	79.6	80.4	74.8	76.6	74.7	72.3	81.9
40–44	81.0	89.6	79.4	80.6	80.4	80.1	82.7	80.7
45–49	78.7	*75.0*	*71.3*	87.2	77.1	78.1	*79.7*	79.1
50 or over	88.1	*88.0*	*80.0*	0	*94.0*	*89.8*	88.5	*81.0*

Note: Figures in italics based on less than five persons.

TABLE 43.—*Hemoglobin values of shipyard workers according to sex and color, by shipyard*

Hemoglobin gm. per 100 cc. of blood	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES							
Total	2,216	189	239	398	329	328	297	436
Less than 7.5	0	0	0	0	0	0	0	0
7.5–8.4	2	1	0	1	0	0	0	0
8.5–9.4	5	2	1	1	1	0	0	0
9.5–10.4	0	0	0	0	0	0	0	0
10.5–11.4	13	7	0	2	4	0	0	0
11.5–12.4	122	11	12	41	19	12	6	21
12.5–13.4	223	34	23	53	29	18	16	50
13.5–14.4	733	25	79	151	121	94	87	176
14.5–15.4	761	48	67	92	106	159	130	159
15.5–16.4	266	37	48	48	36	34	39	24
16.5–17.4	74	17	4	9	11	11	16	6
17.5–18.4	15	7	4	0	2	0	2	0
18.5–19.4	2	0	1	0	0	0	1	0
Mean	14.5	14.6	14.6	14.2	14.4	14.7	14.8	14.3
Standard deviation	1.2	1.8	1.3	1.3	1.2	1.0	1.1	1.0
	COLORED MALES							
Total	239	20	50	------	56	95	3	15
7.5–8.4	2	2	0	------	0	0	0	0
8.5–9.4	2	2	0	------	0	0	0	0
9.5–10.4	4	1	0	------	0	2	0	1
10.5–11.4	6	2	2	------	1	1	0	0
11.5–12.4	27	3	10	------	3	8	0	3
12.5–13.4	38	5	10	------	13	10	0	0
13.5–14.4	85	1	14	------	16	45	3	6
14.5–15.4	58	2	9	------	18	24	0	5
15.5–16.4	11	1	3	------	4	3	0	0
16.6–17.4	5	1	1	------	1	2	0	0
17.5–18.4	1	0	1	------	0	0	0	0
Mean	13.8	12.2	13.7	------	14.1	14.0	14.0	13.7
Standard deviation	1.5	2.5	1.5	------	1.2	1.2	0	1.4
	WHITE FEMALES							
Total	1,524	118	147	257	280	226	195	301
Less than 7.5	1	0	0	0	0	0	1	0
7.5–8.4	2	0	1	0	1	0	0	0
8.5–9.4	20	2	5	4	4	2	2	1
9.5–10.4	56	5	7	10	12	8	1	13
10.5–11.4	179	7	21	46	29	30	14	32
11.5–12.4	564	32	51	103	94	103	56	125
12.5–13.4	354	20	29	52	75	46	58	74
13.5–14.4	270	25	14	35	54	33	60	49
14.5–15.4	47	12	8	4	10	4	3	6
15.5–16.4	29	15	9	3	1	0	0	1
16.5–17.4	1	0	1	0	0	0	0	0
17.5–18.4	0	0	0	0	0	0	0	0
18.5–19.4	1	0	1	0	0	0	0	0
Mean	12.5	13.2	12.5	12.3	12.5	12.3	12.8	12.4
Standard deviation	1.3	1.7	1.7	1.2	1.4	1.1	1.3	1.2

TABLE 44.—*Hemoglobin values of shipyard workers according to sex and color, by age*

Hemoglobin gm. per 100 cc. of blood	Age (years)							
	Total	Under 25	25–29	30–34	35–39	40–44	45–49	50 or over
	WHITE MALES							
Total	2,216	302	380	531	370	247	133	253
7.5–8.4	2	1	0	0	0	0	1	0
8.5–9.4	5	1	0	3	1	0	0	0
9.5–10.4	0	0	0	0	0	0	0	0
10.5–11.4	13	2	4	2	1	2	0	2
11.5–12.4	122	17	9	23	19	15	12	27
12.5–13.4	223	38	37	44	37	22	18	27
13.5–14.4	733	93	132	177	120	87	42	82
14.5–15.4	761	99	122	187	134	87	42	90
15.5–16.4	266	36	53	72	47	27	13	18
16.5–17.4	74	13	18	19	8	5	5	6
17.5–18.4	15	2	3	4	3	2	0	1
18.5–19.4	2	0	2	0	0	0	0	0
Mean	14.5	14.4	14.6	14.6	14.5	14.4	14.3	14.2
Standard deviation	1.2	1.3	1.2	1.2	1.2	1.2	1.3	1.2
	COLORED MALES							
Total	239	37	41	53	49	34	13	12
7.5–8.4	2	0	1	0	1	0	0	0
8.5–9.4	2	0	1	0	1	0	0	0
9.5–10.4	4	0	0	1	0	1	1	1
10.5–11.4	6	0	0	2	2	1	0	1
11.5–12.4	27	2	8	5	4	1	3	4
12.5–13.4	38	1	5	13	9	6	3	1
13.5–14.4	85	21	9	15	17	16	4	3
14.5–15.4	58	10	10	13	13	8	2	2
15.5–16.4	11	2	4	3	2	0	0	0
16.5–17.4	5	1	3	0	0	1	0	0
17.5–18.4	1	0	0	1	0	0	0	0
Mean	13.8	14.3	13.9	13.8	13.7	13.9	13.2	12.8
Standard deviation	1.5	.9	1.9	1.5	1.6	1.3	1.4	1.6
	WHITE FEMALES							
Total	1,524	510	339	291	215	111	39	19
Less than 7.5	1	1	0	0	0	0	0	0
7.5–8.4	2	0	0	1	0	1	0	0
8.5–9.4	20	9	1	4	6	0	0	0
9.5–10.4	56	19	6	11	12	6	2	0
10.5–11.4	179	55	48	29	24	10	9	4
11.5–12.4	564	197	125	104	93	35	8	2
12.5–13.4	354	105	85	77	41	30	10	6
13.5–14.4	270	91	61	51	29	24	8	6
14.5–15.4	47	20	9	7	3	5	2	1
15.5–16.4	29	12	3	7	7	0	0	0
16.5–17.4	1	1	0	0	0	0	0	0
17.5–18.4	0	0	0	0	0	0	0	0
18.5–19.4	1	0	1	0	0	0	0	0
Mean	12.5	12.5	12.6	12.6	12.3	12.6	12.5	12.9
Standard deviation	1.4	1.4	1.2	1.4	1.4	1.4	1.4	1.2

Table 45.—*Hemoglobin values for shipyard welders according to sex and color, by months of shipyard welding*

Hemoglobin gm. per 100 cc. of blood	Months of shipyard welding						
	Total	Under 6	6-11	12-23	24-35	36 or over	Not stated
	WHITE MALES						
Total	1,405	125	163	383	531	202	1
7.5-8.4	1	0	0	0	0	0	1
8.5-9.4	4	1	1	2	0	0	0
9.5-10.4	0	0	0	0	0	0	0
10.5-11.4	8	0	2	4	2	0	0
11.5-12.4	70	14	13	19	20	4	0
12.5-13.4	141	15	16	49	42	19	0
13.5-14.4	471	37	40	131	191	72	0
14.5-15.4	494	41	51	120	201	81	0
15.5-16.4	165	11	30	41	62	21	0
16.5-17.4	38	4	6	13	11	4	0
17.5-18.4	12	2	4	4	2	0	0
18.5 or over	1	0	0	0	0	1	0
Mean	14.5	14.3	14.6	14.4	14.5	14.6	8.0
Standard deviation	1.2	1.4	1.5	1.3	1.0	1.0	0
	COLORED MALES						
Total	173	21	52	76	22	2	
9.5-10.4	2	1	0	1	0	0	
10.5-11.4	3	1	0	2	0	0	
11.5-12.4	18	2	5	7	3	1	
12.5-13.4	28	4	13	10	1	0	
13.5-14.4	63	6	15	32	9	1	
14.5-15.4	46	6	13	19	8	0	
15.5-16.4	9	1	4	4	0	0	
16.5-17.4	3	0	1	1	1	0	
17.5-18.4	1	0	1	0	0	0	
Mean	14.0	13.7	14.1	13.9	14.2	13.0	
Standard deviation	1.3	1.5	1.3	1.1	1.2	1.0	
	WHITE FEMALES						
Total	1,101	260	257	515	68		1
7.5-8.4	3	1	1	1	0		0
8.5-9.4	16	5	3	8	0		0
9.5-10.4	46	15	9	21	1		0
10.5-11.4	136	26	36	68	6		0
11.5-12.4	409	103	92	197	16		1
12.5-13.4	253	52	63	108	30		0
13.5-14.4	184	43	42	86	13		0
14.5-15.4	29	8	7	12	2		0
15.5-16.4	24	7	4	13	0		0
16.5-17.4	1	0	0	1	0		0
Mean	12.5	12.4	12.5	12.5	12.8		12.0
Standard deviation	1.3	1.4	1.4	1.4	1.0		0

TABLE 46.—*Volume of packed red blood cells for shipyard workers according to sex and color, by shipyard*

Red cells, cc. per 100 cc. of blood	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES							
Total	2,218	189	239	398	330	328	297	437
Less than 35	4	0	0	4	0	0	0	0
35	1	1	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0
37	5	1	2	1	0	1	0	0
38	12	2	1	2	2	3	0	2
39	19	2	3	5	5	1	1	2
40	31	6	2	9	5	4	0	5
41	55	9	7	14	4	8	6	7
42	89	13	12	26	12	7	11	8
43	125	24	11	27	14	16	15	18
44	214	32	14	52	28	22	18	48
45	249	16	36	49	35	35	24	54
46	261	12	37	54	29	40	27	62
47	247	16	24	46	36	40	29	56
48	264	21	32	44	47	44	33	43
49	208	9	25	25	37	33	38	41
50	172	7	13	21	31	28	32	40
51	99	5	6	8	13	19	25	23
52	74	7	6	8	12	13	14	14
53	44	4	4	1	8	12	8	7
54	29	1	3	2	10	0	9	4
55 or over	16	1	1	0	2	2	7	3
Mean	46.7	45.4	46.4	45.6	47.1	47.1	47.9	46.9
Standard deviation	3.4	3.6	3.2	3.3	3.4	3.2	3.4	3.0
	COLORED MALES							
Total	239	20	50	------	56	95	3	15
35	1	0	0	------	0	1	0	0
36	0	0	0	------	0	0	0	0
37	3	0	1	------	0	1	0	1
38	0	0	0	------	0	0	0	0
39	2	0	1	------	0	1	0	0
40	8	2	5	------	0	1	0	0
41	8	0	3	------	0	5	0	0
42	13	2	5	------	4	2	0	0
43	13	0	3	------	4	6	0	0
44	24	4	4	------	1	13	0	2
45	38	6	7	------	7	17	1	0
46	21	2	4	------	5	6	1	3
47	31	2	5	------	7	15	1	1
48	24	1	4	------	6	10	0	3
49	18	1	2	------	7	7	0	1
50	13	0	0	------	7	3	0	3
51	11	0	2	------	5	3	0	1
52	3	0	2	------	0	1	0	0
53	5	0	0	------	3	2	0	0
54	1	0	1	------	0	0	0	0
55 or over	2	0	1	------	0	1	0	0
Mean	46.0	44.7	45.1	------	47.4	45.9	46.0	46.9
Standard deviation	3.4	2.3	4.1	------	2.9	3.3	.8	3.4

TABLE 46.—*Volume of packed red blood cells for shipyard workers according to sex and color, by shipyard*—(Continued)

Red cells, cc. per 100 cc. of blood	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE FEMALES							
Total	1,525	118	147	257	281	226	195	301
Less than 30	2	0	1	0	0	0	1	0
30	3	0	2	1	0	0	0	0
31	3	1	0	0	0	0	1	1
32	10	2	4	1	1	1	1	0
33	11	3	0	3	2	2	0	1
34	16	3	4	2	4	1	1	1
35	28	6	1	7	4	5	1	4
36	26	3	2	3	1	6	5	6
37	50	6	3	16	8	6	5	6
38	82	5	6	21	16	12	6	16
39	135	14	21	33	14	23	8	22
40	187	12	19	27	34	37	23	35
41	176	17	13	27	33	32	21	33
42	198	11	19	36	42	38	21	31
43	177	9	17	29	29	27	24	42
44	161	16	13	21	27	14	30	40
45	101	2	7	15	27	10	20	20
46	68	4	3	4	18	6	14	19
47	44	1	2	5	12	5	6	13
48	21	2	3	1	4	0	6	5
49	14	1	1	2	4	0	1	5
50	5	0	2	1	1	1	0	0
51	2	0	0	1	0	0	0	1
52	2	0	1	1	0	0	0	0
53	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0
55 or over	3	0	3	0	0	0	0	0
Mean	41.6	40.4	41.0	41.0	42.1	41.0	42.3	42.1
Standard deviation	3.4	3.6	4.4	3.3	3.2	2.8	3.3	3.1

TABLE 47.—*Number of stippled cells per one million red blood cells of shipyard workers according to sex and color, by shipyard*

Stippled cells per million	Shipyard						
	Total	A	B	D	E	G	H
	WHITE MALES						
Total	1,864	88	325	419	358	263	411
Less than 100	1,055	31	132	312	185	109	286
100–250	296	8	73	43	69	45	58
250–500	134	8	32	11	33	30	20
500–1,000	182	20	39	31	38	34	20
1,000–1,500	66	5	12	14	12	15	8
1,500–2,000	37	2	13	4	7	7	4
2,000–3,000	46	6	13	3	8	10	6
3,000–5,000	39	6	10	1	3	13	6
5,000 or over	9	2	1	0	3	0	3
	COLORED MALES						
Total	225	--------	56	59	93	2	15
Less than 100	135	--------	32	40	53	2	8
100–250	38	--------	9	9	15	0	5
250–500	9	--------	4	2	3	0	0
500–1,000	21	--------	5	4	10	0	2
1,000–1,500	13	--------	5	3	5	0	0
1,500–2,000	1	--------	1	0	0	0	0
2,000–3,000	4	--------	0	1	3	0	0
3,000–5,000	2	--------	0	0	2	0	0
5,000 or over	2	--------	0	0	2	0	0
	WHITE FEMALES						
Total	1,153	2	206	278	209	178	280
Less than 100	671	1	101	157	133	97	182
100–250	195	0	31	59	43	24	38
250–500	95	0	24	19	12	13	27
500–1,000	98	1	22	25	13	22	15
1,000–1,500	36	0	11	6	4	8	7
1,500–2,000	19	0	5	2	2	4	6
2,000–3,000	16	0	6	2	1	3	4
3,000–5,000	15	0	4	5	1	5	0
5,000 or over	8	0	2	3	0	2	1

TABLE 48.—*Percentage of shipyard workers having certain diagnoses, findings, and symptoms according to sex and color, by shipyard*

Diagnoses, findings and symptoms	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE MALES							
Diagnoses								
Anemic syndrome	25.4	34.6	24.9	40.7	21.1	15.8	12.1	29.2
Arteriosclerotic-hypertensive heart disease	9.0	6.0	4.5	7.9	11.9	11.5	10.5	8.4
Dermatoses:								
Acne	3.4	6.3	4.2	2.5	1.7	3.8	2.7	4.3
Heat rash	2.5	0	2.4	11.9	.8	.3	.7	.2
Respiratory affections:								
Pulmonary tuberculosis	1.4	.5	.3	1.4	1.9	2.4	2.1	1.2
Upper respiratory	44.5	55.3	47.4	40.9	47.2	41.0	51.5	34.2
Welder's siderosis	2.6	1.3	1.6	1.5	3.0	3.2	4.4	3.0
Findings								
Eye, nose and throat:								
Conjunctival irritation	19.1	22.5	14.7	20.0	18.2	22.0	25.8	14.4
Congested nasal mucous membrane	20.9	29.9	11.0	14.5	19.9	24.8	30.0	22.1
Pharyngeal irritation, moderate or marked	27.5	28.7	24.6	24.8	32.8	29.8	34.7	18.5
Heart or aorta enlarged	1.9	1.8	1.3	.5	2.3	2.7	3.1	1.6
Musculoskeletal defects	8.5	11.4	7.1	7.9	8.6	9.1	9.4	7.1
Oral hygiene, poor	9.0	17.6	9.3	8.8	8.2	4.9	6.1	10.7
Pulmonary calcification	8.4	7.7	9.4	10.7	9.1	7.9	8.2	5.4
Syphilis (positive blood test)	2.4	4.7	1.3	4.5	2.7	1.4	1.4	1.6
Symptoms								
Headache	5.4	5.9	3.7	6.0	5.0	5.4	4.0	7.6
Gastrointestinal	6.4	6.8	6.6	5.7	9.2	5.7	3.7	5.7
Upper respiratory	33.0	25.3	28.7	23.2	40.4	38.3	39.6	34.6
	COLORED MALES							
Diagnoses								
Anemic syndrome	42.3	65.1	50.8	-------	31.1	34.7	*33.3*	46.7
Arteriosclerotic-hypertensive heart disease	13.2	9.5	11.3	-------	16.7	14.9	*0*	6.7
Dermatosis:								
Acne	.3	0	0	-------	1.4	0	*0*	0
Heat rash	0	0	0	-------	0	0	*0*	0
Respiratory affections:								
Pulmonary tuberculosis	2.7	0	3.1	-------	1.4	3.1	*33.3*	6.7
Upper respiratory	38.6	37.2	43.1	-------	55.4	26.5	*0*	26.7
Welder's siderosis	1.0	0	0	-------	0	2.0	*0*	6.7
Findings								
Eye, nose and throat:								
Conjunctival irritation	11.2	4.8	7.9	-------	21.6	9.3	*0*	6.7
Congested nasal mucous membrane	18.0	20.9	15.4	-------	23.0	18.1	*0*	0
Pharyngeal irritation, moderate or marked	30.1	20.9	21.5	-------	50.0	28.1	*0*	13.3
Heart or aorta enlarged	9.0	25.6	9.2	-------	9.5	3.1	*0*	0
Musculoskeletal defects	7.4	7.0	6.2	-------	8.1	7.2	*66.7*	0
Oral hygiene, poor	10.3	9.8	12.5	-------	12.3	8.3	*0*	6.7
Pulmonary calcification	6.7	2.3	3.1	-------	9.5	9.3	*33.3*	0
Syphilis (positive blood test)	20.5	30.2	12.5	-------	15.1	27.6	*0*	13.3
Symptoms								
Headache	6.1	4.7	3.1	-------	2.7	9.4	*0*	20.0
Gastrointestinal	4.1	2.3	1.5	-------	5.5	6.3	*0*	0
Upper respiratory	24.7	18.6	20.0	-------	38.4	18.8	*0*	40.0

TABLE 48.—*Percentage of shipyard workers having certain diagnoses, findings, and symptoms according to sex and color, by shipyard*—(Continued)

Diagnoses, findings and symptoms	Shipyard							
	Total	A	B	C	D	E	G	H
	WHITE FEMALES							
Diagnoses								
Anemic syndrome	24.4	21.1	29.6	35.0	18.2	19.4	20.5	25.6
Arteriosclerotic-hypertensive heart disease	2.5	1.7	1.3	2.1	2.6	3.1	3.6	3.0
Dermatosis:								
Acne	1.5	1.7	1.2	.8	.7	1.3	3.6	1.7
Heat rash	.9	0	.8	5.1	0	0	0	0
Respiratory affections:								
Pulmonary tuberculosis	1.0	1.1	1.3	0	1.0	1.8	1.6	.7
Upper respiratory	28.2	21.1	25.5	22.2	27.5	30.0	46.7	26.6
Welder's siderosis	0	0	0	0	0	0	0	0
Findings								
Eye, nose and throat:								
Conjunctival irritation	10.8	7.8	7.4	13.0	12.7	16.0	18.6	3.0
Congested nasal mucous membrane	12.7	9.0	11.8	5.5	12.4	17.6	17.7	15.3
Pharyngeal irritation, moderate or marked	14.3	15.6	9.3	11.7	19.7	20.8	18.6	7.0
Heart or aorta enlarged	.3	.6	0	.4	.3	0	.5	.3
Musculoskeletal defects	2.4	1.7	1.2	1.2	2.1	2.2	5.6	3.0
Oral hygiene, poor	2.8	6.3	4.1	2.4	2.8	.4	2.1	2.3
Pulmonary calcification	8.0	5.0	10.9	10.9	9.4	8.8	5.2	5.0
Syphilis (positive blood test)	3.8	3.5	4.9	5.2	4.0	3.2	2.1	3.0
Symptoms								
Headache	10.1	11.7	9.3	6.3	10.4	7.1	9.9	15.0
Gastrointestinal	2.9	4.4	2.4	5.1	2.8	2.7	.5	2.3
Upper respiratory	24.0	16.1	11.3	13.3	32.5	35.8	24.6	30.7

Note: Figures in italics based on less than five persons.

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MANPOWER ★ SAFETY ★ WARPOWER

22nd Annual

MIDWEST SAFETY CONFERENCE and EXPOSITION

★

Auspices
GREATER CHICAGO SAFETY COUNCIL
INSTITUTE OF TRAFFIC ENGINEERS
and
COOPERATING AGENCIES

★

SHERMAN HOTEL
Tuesday, Wednesday and Thursday
May 2, 3 and 4, 1944
Chicago

★

NO REGISTRATION FEE
All Sessions Central War Time

VISIT THE EXHIBIT!

DEDICATION

We of the Greater Chicago Safety Council and the cooperating agencies and exhibitors pledge this 22nd Annual Midwest Safety Conference to the proposition that all men, women, and children are entitled to work and play safely and to this end we are united in maintaining a constant vigilance so that our Manpower through Safety will increase and maintain our Warpower to ultimate Victory.

B. M. Livezey
General Chairman
22nd Annual Midwest Safety Conference

COOPERATING AGENCIES

American College of Surgeons
American Foundrymen's Association
The American Legion, Department of Illinois
American Medical Association
American Mutual Alliance
The American Society of Mechanical Engineers — Chicago Section
The Associated Clubs of Woodlawn, Inc.
Associated Builders of Chicago
Association of American Railroads, Safety Section
Association of Casualty and Surety Executives
Association of Manufacturers of Chilled Car Wheels
Authorized Ford Dealers Association
Automotive Transportation Supervisors Association of Chicago
The Bakers Club of Chicago
Berwyn Safety Council
Building Managers Association of Chicago
Calumet Transportation Association
Cartage Exchange of Chicago
Casualty Adjusters Association of Chicago
Casualty Engineers Association
Central Motor Freight Association
Chicago Area Conference of Kiwanis Clubs
Chicago Association of Commerce
Chicago Automobile Trade Association
Chicago Branch, National Metal Trades Association
Chicago, City of
Chicago Chapter, American Red Cross
Chicago Church Federation
Chicago Coal Merchants Association
Chicago Council of Boy Scouts of America
Chicago Council of Camp Fire Girls
Chicago Crime Commission
Chicago District Ice Association
Chicago Elevator Manufacturers Association
Chicago Hospital Council
Chicago Industrial Nurses Association
Chicago Laundry Owners Association
Chicago Management Council
Chicago Motor Club

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COOPERATING AGENCIES

Chicago Park District
Chicago Regional Planning Association
Chicago Restaurant Association
Chicago Section, American Chemical Society
Chicago Section — American Industrial Hygiene Association
Chicago Section, Society of Automotive Engineers
Chicago Street Traffic Commission
Cicero Safety Council
City of Chicago Noise Abatement Commission
Cook County Council, The American Legion
Cook County Retail Council
Council of Social Agencies of Chicago
Cycle Trades of America, Inc.
Des Plaines Safety Council
East Chicago Chamber of Commerce
East Chicago Safety Council
Elgin Safety Council
Employers Association of Chicago
The Evanston Safety Council
Forest Park Safety & Traffic Commission
Funeral Services Associated
Gary Safety Council
Girl Scouts, Inc. of Chicago
Greater Central District Association, Inc.
Greater Chicago Hotel Association
Hammond Safety Council
Highland Park Citizens Safety Committee
Illinois Agricultural Association
Illinois Automobile Club
Illinois Builders League
Illinois Bus Association
Illinois Chamber of Commerce
Illinois Congress of Parents and Teachers
Illinois Department of Labor
Illinois Division of Highways
Illinois-Eastern Iowa District — Kiwanis International
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Illinois Federation of Women's Clubs
Illinois Highway Users Conference
Illinois Industrial Commission
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COOPERATING AGENCIES

Illinois Institute of Technology
Illinois Manufacturers' Association
Illinois Road Builders Association
Illinois Society for the Prevention of Blindness
Illinois, State of
Illinois State Grange
Industrial Management Association
Industrial Relations Association of Chicago
Institute of American Meat Packers
International Association of Chiefs of Police
Junior Association of Commerce of Chicago
LaGrange Safety Commission
League of American Wheelmen
Lions International, District 1-A, Illinois
Metropolitan Housing Council
Motor Truck Owners Association
Mill Mutual Fire Prevention Bureau
National Board of Fire Underwriters
National Committee for the Conservation of Manpower in War Industries
National Conservation Bureau
National Fire Protection Association
National Founders Association
National Safety Council
North Central Association
North Shore Property Owners Association
Northwest Associated Manufacturers
Northwestern University Traffic Safety Institute
Park Ridge Safety Council
Portland Cement Association
Rural Public Nursing Service of Cook County
State Street Council
Trade Association Executives Forum of Chicago
The Tuberculosis Institute of Chicago and Cook County
Underwriters Laboratories
United States Department of Labor
Waukegan Safety Council
Western Actuarial Bureau
Western Society of Engineers
West Towns Chamber of Commerce
Wisconsin Council of Safety

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SCHEDULE OF SESSIONS

Session Number

Tuesday, May 2, 1944

Morning—9:30 A. M.

1 Industrial Safety—Causes and Prevention of War Time Accidents, Grand Ballroom

2 Commercial Vehicle, Crystal Room

Noon—12:15 P. M.

3 All-Conference Luncheon, Louis XVI Room

Afternoon—2:00 P. M.

4 Industrial Safety—Small Plant Session, Grand Ballroom

Evening—7:30 P. M.

5 American Red Cross Session, Grand Ballroom

Wednesday, May 3, 1944

Morning—9:30 A. M.

6 Industrial Safety—Maintaining Interest, Grand Ballroom

7 War Industry Transportation and Traffic Session No. 1, Crystal Room

Afternoon—2:00 P. M.

8 Industrial Safety—Retraining War Casualties for Industrial Employment, Grand Ballroom

9 War Industry Transportation and Traffic Session No. 2, Crystal Room

Evening—7:30 P. M.

10 Industrial Safety Engineering Courses, Grand Ballroom

11 War Industry Transportation and Traffic Session No. 3, Crystal Room

Thursday, May 4, 1944

Morning—9:30 A. M.

12 Women in War Work, Grand Ballroom

13 Fire Prevention No. 1, Louis XVI Room

Noon—12:15 P. M.

14 Luncheon, West Room

Afternoon—2:00 P. M.

15 Fire Prevention No. 2, Louis XVI Room

16 Industrial Hygiene, Crystal Room

Evening—6:30 P. M.

17 Banquet, Grand Ballroom

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1. INDUSTRIAL SAFETY—CAUSES AND PREVENTION OF WAR-TIME ACCIDENTS

Tuesday, May 2, 1944—9:30 A. M.

GRAND BALLROOM, MEZZANINE FLOOR

Presiding: W. Dean Keefer, Second Vice President, Manager, Engineering Department, Lumbermens Mutual Casualty Company, Chicago, Illinois.

1. **What Management Expects in Safety**
   Glen V. Rork, President, Northern States Power Company, Eau Claire, Wisconsin.
2. **The Supervisors' Part in Accident Prevention**
   E. A. Page, Industrial Relations Department, Kimberly-Clark Corporation, Neenah, Wisconsin.
3. **Securing Worker Cooperation**
   Dr. John F. Humes, University of Illinois, Urbana, Illinois.

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2. COMMERCIAL VEHICLE

Tuesday, May 2, 1944—9:30 A. M.

CRYSTAL ROOM, FIRST FLOOR

Presiding: E. J. Emond, Automotive Safety Engineer, Armour and Company, Chicago, Illinois.

1. **Maintaining Driver Interest in Your War-Time Safety Program**
   Paul H. Coburn, Fleet Safety Engineer, National Safety Council, Chicago, Illinois.
2. **Fleet Operation Clinic—A Panel**
   Bruno Lawce, Safety Engineer, James A. Hanna Motor Service, Chicago, Illinois.
   Arthur Korn, Safety Engineer, Cushman Motor Delivery, Chicago, Illinois.
   Edward J. Slezak, Director of First Aid, American Red Cross, Chicago Chapter.
   Harry Dornan, Fleet Engineer, Hartford Accident and Indemnity Company, Chicago, Illinois.
   Edward M. Barber, Safety Director, Scherer Freight Line, Chicago, Illinois.
   Harry Pence, Director of Safety & Maintenance, Standard Freight Lines, Chicago, Illinois.

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3.

ALL CONFERENCE LUNCHEON

Tuesday, May 2, 1944—12:15 P. M.

LOUIS XVI ROOM, FIRST FLOOR

Presiding: B. M. Livezey, General Superintendent, South Works, Carnegie-Illinois Steel Corporation, Chicago, Illinois; and General Chairman, Midwest Safety Conference.

Address: Safety Shortens the War
Captain D. E. Vierling, Safety and Health Branch, Security-Intelligence Division, Sixth Service Command, U. S. Army.

LATEST OFFICIAL ARMY WAR FILM RELEASE

$1.75 Per Plate **Table of 8**

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4. INDUSTRIAL SAFETY—SMALL PLANT SESSION

Safeguard Your Plant for Post War Work

Tuesday, May 2, 1944—2:00 P. M.

GRAND BALLROOM, MEZZANINE FLOOR

Chairman—

A. R. Graham, Supervising Safety Engineer, Chicago District, Bituminous Casualty Corporation, Chicago, Illinois.

1. **Small Plants Can Be Safe**

   J. I. Yellott, Director of Institute of Gas Technology, Affiliated with Illinois Institute of Technology.

2. **Vision and Accidents**

   Dr. Joseph Tiffin, Department of Applied Psychology, Purdue University, Lafayette, Indiana.

3. **Protection of Eyes in Industry**

   Harry Guilbert, Director of Safety and Personnel, The Pullman Company, Chicago, Illinois.

4. **A Demonstration of the Hazards of Low Voltage Electricity**

   Dramatization of defective electrical equipment and the flow of current through the body by the use of a wired robot.

   A. L. Dowden, Safety Engineer, Liberty Mutual Insurance Company, Boston, Massachusetts.

5. **Motion Pictures**

   Industrial Safety Educational Colored Motion Pictures. Major C. B. Cannon, Safety Director, Industrial Safety Educational Service, and Member of Firm, Surty Manufacturing Company, Inc., Chicago, Illinois.

   These pictures were taken in color, and portray modern methods of providing safety for industrial workers. Many of the pictures to be shown have been taken by Major Cannon under the supervision of the War Department. Drawings and detailed information, as well as the showing of these pictures can be arranged by communicating with the Industrial Safety Educational Service, 4139 W. Kinzie Street, Chicago, Illinois.

   Considerable thought has been given to the content matter of the films and they cover the following topics:

   Safeguarding Eyes with Proper Shields and Goggles
   Slipping Hazards and Housekeeping

   Pictures Dealing with Dispensary and First Aid Station in Actual Operation

   Transmission Guarding

   Dimensional Painting

   Point of Operation Guarding

Small Plant Session Reception Committee—

Chairman: A. R. Graham, Supervising Safety Engineer, Chicago District, Bituminous Casualty Corporation, Chicago, Illinois.

A. F. Erickson, Works Manager, All Steel Equipment Company, Aurora, Illinois.

Milton Judd, Personnel Manager, Lyon Metal Products, Aurora, Illinois.

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Harry Meng, Vice President, W. D. Allen Manufacturing Company, Chicago, Illinois.

Paul Van Cleef, Member of Firm, Van Cleef Brothers, Chicago, Illinois.

The Casualty Engineers Association is cooperating in this session.

◆

5. AMERICAN RED CROSS—CHICAGO CHAPTER

Tuesday, May 2, 1944—7:30 P. M.

GRAND BALLROOM, MEZZANINE FLOOR

Presiding: Edward J. Slezak, Director of First Aid, Water Safety and Accident Prevention, Chicago Chapter.

1. **Red Cross Home and Victory Garden Accident Prevention**

   Dr. Irma Nevins, Assistant National Director, First Aid, Water Safety and Accident Prevention, Washington, D. C.

2. **Red Cross First Aid, Water Safety and Accident Prevention—Available Through Chapters**

   Ray Schlotterbeck, Director of First Aid, Water Safety and Accident Prevention, Midwestern Area, St. Louis, Mo.

3. **What's Under Your Hat in America**

   Commodore W. E. Longfellow, Assistant National Director, First Aid, Water Safety and Accident Prevention, Washington, D. C.

◆

6. INDUSTRIAL SAFETY—MAINTAINING INTEREST CLINIC

Wednesday, May 3, 1944—9:30 A. M.

GRAND BALLROOM, MEZZANINE FLOOR

Three quiz sessions will be conducted with representative delegates being the quiz experts. Adequacy of the answers will be evaluated by the audience.
Bring your questions.

Presiding and Quiz Master: Howard L. Leavitt, Regional Manager, Loss Prevention Department, Liberty Mutual Insurance Company, Chicago, Illinois.

Program:

1. **Maintaining Interest Among Executives**
2. **A Demonstration on How NOT to Conduct a Safety Committee Meeting**
3. **Maintaining Interest Among Supervisors**
4. **Demonstration on HOW to Conduct a Safety Committee Meeting**
5. **Maintaining Interest Among Workers**
6. **How You Can Sell 'Em and Keep 'Em Sold!**

   Charles W. Bolan, Advertising & Sales Promotion Consultant, Behel & Waldie & Briggs Agency; Instructor in Advertising, Washington University, St. Louis, Missouri.

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7. WAR INDUSTRY TRANSPORTATION AND TRAFFIC SESSION NO. 1

Wednesday, May 3, 1944—9:30 A. M.

CRYSTAL ROOM, FIRST FLOOR

Presiding: B. M. Livezey, General Superintendent, South Works, Carnegie-Illinois Steel Corporation, Chicago, Illinois; Administrative Vice President, Greater Chicago Safety Council.

1. **Industry's Relation to Off-the-Job Accidents**

   George Greenwood, Safety Department, Western Electric Company, Hawthorne Works, Chicago, Illinois.

   Discussion—John Roche, Director of Industrial Division, National Safety Council, Chicago, Illinois.

2. **Training the Worker for Twenty-four Hours a Day Safety**

   Dr. B. L. Corbett, Milwaukee Safety Commission, Milwaukee, Wisconsin.

   Discussion—Julien H. Harvey, Managing Director, National Conservation Bureau, New York, New York.

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8. RETRAINING WAR CASUALTIES FOR INDUSTRIAL EMPLOYMENT

Wednesday, May 3, 1944—2:00 P. M.

GRAND BALLROOM, MEZZANINE FLOOR

Presiding: Professor C. W. Beese, Director of War Training, Purdue University, Lafayette, Indiana.

1. **A Practical Program for Human Rehabilitation**

   Dr. Harold A. Vonachen, Medical Director, Caterpillar Tractor Company, Peoria, Illinois.

2. **Mental Rehabilitation**

   Dr. Francis B. Gerty, Consultant, Neuropsychiatry, U. S. Veterans Administration, Edward Hines Hospital; Director, Psychiatric Division, Illinois Neuropsychiatric Institute, State Department of Public Welfare; Professor and Head of Department of Psychiatry, College of Medicine, University of Illinois.

3. **The Government Looks at Rehabilitation**

   Lt. Col. Herman Weimer, Veterans Employment Representative for State of Illinois, U. S. Employment Service, War Manpower Commission.

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9. WAR INDUSTRY TRANSPORTATION AND TRAFFIC SESSION NO. 2

Wednesday, May 3, 1944—2:00 P. M.

CRYSTAL ROOM, FIRST FLOOR

Presiding: Charles S. Craigmile, Executive Vice President, Belden Manufacturing Company, Chicago, Illinois. Past President, Greater Chicago Safety Council.

1. **Law Enforcement of Wartime Traffic**

   Judge John Gutknecht, Judge of Municipal Court, Chicago, Illinois.

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2. **War Worker Transportation Present and Future**

   Harold Hammond, Director, Traffic and Transportation, National Conservation Bureau, New York, New York.

3. **War Psychology vs. Traffic Accidents**

   Dr. Lowell S. Selling, Director of the Psychological Clinic, Recorder Court, Detroit, Michigan.

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10. INDUSTRIAL SAFETY ENGINEERING COURSES

Wednesday, May 3, 1944—7:30 P. M.

GRAND BALLROOM, MEZZANINE FLOOR

Presiding: Professor J. I. Yellott, Chairman, War Training Committee, Illinois Institute of Technology, Chicago, Illinois.

A feature of this program will be a demonstration of the Armour Research Foundation's Wire Recorder. This is a new recording device, using the principal of magnetized wire, which is used exclusively by the War Department at the present time, but which has tremendous possibilities for post-war commercial and domestic use.

Presentation of Certificates to Members of Graduating Classes in Industrial Safety Engineering.

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11. WAR INDUSTRY TRANSPORTATION AND TRAFFIC SESSION NO. 3

Wednesday, May 3, 1944—8:15 P. M.

CRYSTAL ROOM, FIRST FLOOR

Panel Discussion of Wartime Traffic Engineering Techniques

Presiding: Harold Hammond, Director, Traffic and Transportation, National Conservation Bureau, New York, New York.

Panel:

T. J. Seburn, Traffic Engineer, Kansas City, Missouri.
W. F. Rosenwald, Traffic Engineer, Minnesota Department of Highways, St. Paul, Minnesota.

Howard Ilgner, Superintendent and Chief Engineer, Milwaukee, Wisconsin.

W. F. Milner, Traffic Engineer, Indianapolis, Indiana.

Lt. Col. Arnold H. Vey, Detroit Traffic Control, Detroit, Michigan.

Henry W. Osborne, Traffic Advisor, Buffalo, New York.
Wayne Volk, Traffic Engineer, Madison, Wisconsin.

Lloyd Braff, Assistant Traffic Engineer, Detroit, Michigan.

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12. WOMEN IN WAR WORK

Thursday, May 4, 1944—9:30 A. M.

GRAND BALLROOM, MEZZANINE FLOOR

Presiding: Ruth Stone, Women's Placement Consultant, Hawthorne Works, Western Electric Company, Chicago, Illinois.

1. **Safety for Minors Under the Federal Laws**

   Florence M. Henderson, Child Labor Consultant, U. S. Children's Bureau, U. S. Department of Labor, Washington, D. C.

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2. **Women Pose New Safety Problems**
A. N. Chapman, Safety Director, Pratt & Whitney Aircraft Corporation of Missouri.

3. **What We Women Think of the Safety Program**
Mildred Waugh, Plant Editor, International Harvester Company, Chicago, Illinois.

4. **Special Problems of the Pregnant Woman in Industry**
Caroline G. Olsen, R. N., Liberty Mutual Insurance Company, Boston, Massachusetts.

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13. FIRE PREVENTION

Thursday, May 4, 1944—9:30 A. M.

LOUIS XVI ROOM, FIRST FLOOR

Presiding: Curtis R. Welborn, Secretary, Underwriters Laboratories, Inc., Chicago, Illinois.

1. **Improving the Plant Fire Brigade**
(The boss has a visitor)
The Boss—Harry K. Rogers, Chief Instructor, Fire Prevention Department, Western Actuarial Bureau, Chicago, Illinois.
The Visitor—Emmett T. Cox, Field Officer, Fire Prevention Department, Western Actuarial Bureau, Chicago, Illinois.

2. **Educating Employees in Fire Safety**
Charles Keating, Fire Chief, Republic Aviation Corporation, Indiana Division, Evansville, Indiana.

3. **The Fire Thief**
A sound slide film produced by the National Safety Council and shown through the courtesy of the Greater Chicago Safety Council.

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14. LUNCHEON

Thursday, May 4, 1944—12:15 P. M.

WEST ROOM, FIRST FLOOR

Presiding: Curtis R. Welborn, Secretary, Underwriters Laboratories, Inc., Chicago, Illinois.

Address: Industrial Fires and the War Effort
Col. Carl G. Richmond, C.M.P., Chief, Protection Branch, Internal Security Division, Office of Provost Marshal General, Washington, D. C.

$1.75 Per Plate **Table of 8**

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15. FIRE PREVENTION

Thursday, May 4, 1944—2:00 P. M.

LOUIS XVI ROOM, FIRST FLOOR

Presiding: Curtis R. Welborn, Secretary, Underwriters Laboratories, Inc., Chicago, Illinois.

1. **Fire Problems Clinic—**
J. A. McGuckin, Engineer, Property Protection, Insurance Division, Philadelphia Electric Company, Philadelphia, Pennsylvania—Moderator.

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George H. Anderson, Assistant State Fire Marshal, Springfield, Illinois.

Joseph G. Lump, Fire Chief, Carnegie-Illinois Steel Corporation, Gary Steel Works, Gary, Indiana.

Anthony J. Mullaney, Chief Fire Marshal, Chicago Fire Department, Chicago, Illinois.

Elmer F. Reske, Assistant Manager, Cook County Inspection Bureau, Chicago, Illinois.

2. **How to Live Longer (Lessons from Fire Casualties)**
Robert F. Hamm, Fire Department Instructor, Indiana Inspection Bureau, Indianapolis, Indiana.

3. **The Chemistry of Fire (A Graphic Demonstration)**
Lt. Col. H. R. Brayton, Chemical Warfare Service, Edgewood Arsenal, Maryland.

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16. INDUSTRIAL HYGIENE SESSION

Thursday, May 4, 1944—2:00 P. M.

CRYSTAL ROOM, FIRST FLOOR

Presiding: Warren A. Cook, Division of Industrial Hygiene and Engineering Research, Zurich Insurance Companies, Chicago, Illinois. Secretary, Chicago Section, American Industrial Hygiene Association.

1. **Care and Maintenance of Personal Protective Equipment**
John B. Littlefield, Industrial Hygiene Division, American Brake Shoe & Foundry Company, Chicago, Illinois.

2. **Occupational Acne**
Dr. James Q. Gant, Jr., Surgeon (R), Dermatoses Section, Division of Industrial Hygiene, U. S. Public Health Service, Bethesda, Maryland.

3. **Effects and Control of Industrial Noise**
Allen Wilson, Acoustical Department, The Celotex Corporation, Chicago, Illinois.

4. **Working Relationships Between Medical, Safety, Personnel and Plant Engineering Departments**
John W. Young, Safety Director, International Harvester Company, Chicago, Illinois.

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17. BANQUET

Thursday, May 4, 1944—6:30 P. M.

GRAND BALLROOM, MEZZANINE FLOOR

Toastmaster: B. M. Livezey, General Superintendent, South Works, Carnegie-Illinois Steel Corporation, Chicago, Illinois; Administrative Vice President, Greater Chicago Safety Council.

Presentation of Interplant Contest Awards
M. E. Goetz, District Manager, Republic Steel Corporation, Chicago, Illinois; Vice President, Industrial Safety, Greater Chicago Safety Council.

Presentation of Interfleet Contest Awards
Leslie J. Sorenson, Vice President for Public Safety, Greater Chicago Safety Council; City Traffic Engineer, Chicago, Illinois.

Address by Rear Admiral A. S. Carpender, Commandant, Ninth Naval District, Great Lakes, Illinois

Informal **Tables for Eight Persons**
$4.00 Per Plate

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General Chairman: B. M. Livezey, South Works,
Carnegie-Illinois Steel Corporation

Program Chairman: P. J. Brand, Safety Director,
Pullman-Standard Car Manufacturing Company

Secretary: Joseph F. Stech,
Greater Chicago Safety Council

E. S. Beaumont, Peoples Gas Light & Coke Company—Industrial Sessions.

Warren A. Cook, Zurich General Accident & Liability Insurance Company, Ltd.—Industrial Hygiene Session.

C. H. Davis, Commonwealth Edison Company.

L. E. Dickson, Standard Safety Equipment Company—Exhibit.

E. J. Emond, Armour & Company—Commercial Vehicle Session.

A. R. Graham, Bituminous Casualty Corporation—Small Plant Session.

H. G. Hensel, Youngstown Sheet & Tube Company.

W. Dean Keefer, Lumbermens Mutual Casualty Company—Causes and Prevention of Lost Time Accidents Session.

H. L. Leavitt, Liberty Mutual Insurance Company—Maintaining Interest Session.

T. O. Meisner, American Can Company.

Ralph Michel, Bureau of Streets, Chicago—Public Safety Sessions.

Gertrude O'Brien, Greater Chicago Safety Council—Publicity.

Russell Pisle, Republic Steel Corporation.

M. Sielski, Chicago Motor Club.

Edward J. Slezak, American Red Cross—Red Cross Session.

Leslie J. Sorenson, Chicago Street Traffic Commission.

Ruth Stone, Western Electric Company—Women in War Work Session.

R. E. Vernor, Western Actuarial Bureau—Fire Prevention Sessions.

John I. Yellott, Illinois Institute of Technology—Industrial Safety Training Session; Retraining War Casualties for Industrial Employment Session.

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COMMERCIAL SAFETY EXHIBIT

EXHIBITION HALL—MEZZANINE FLOOR

Open: Tuesday, May 2, 1944—9:00 A. M. to 7:00 P. M.
Wednesday, May 3, 1944—9:00 A. M. to 7:00 P. M.
Thursday, May 4, 1944—9:00 A. M. to 6.00 P. M.

American Abrasive Metals Company, Booth 36
American-LaFrance-Foamite Corporation, 25
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Bituminous Casualty Corporation, 37
E. D. Bullard Company, 1
Chicago Eyeshield Company, 20
Davis Emergency Equipment Co., Inc., 33
Dionol Company, 18
J. H. Emerson Company, 30
Holcomb Safety Garment Company, 29
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International Shoe Company, 45
Junkin Safety Appliance Co., Inc., 28
Justrite Manufacturing Company, 64
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Mine Safety Appliances Company, 5-6-7
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Waverly Petroleum Products Company, 17
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International Assn. of Chiefs of Police

National Safety Council

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Arrange your schedule so that it will include a tour of the Commercial and Educational Exhibits. These Exhibits are shown for your benefit, and you should avail yourself of this opportunity to keep abreast of current events.

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GREATER CHICAGO SAFETY COUNCIL

Joseph F. Stech, Manager
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Superior 1926

Serial No. R. 144

U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Peripheral Vascular Lesions of the Lower Extremities

By ARTHUR W. ALLEN, M.D., *Boston, Mass.*

[Read before the Twenty-first Annual Convention of the International Association of Industrial Accident Boards and Commissions, Boston, Mass., Sept. 24–28, 1934]

The normal circulation of the lower extremities in the human being is adequate in our upright position, as a rule, in youth due to the elastic control mechanism with which we are born and due to the unusual physical activities that go with the growing individual. The adjustment into the more sedentary habits of adult life comes about gradually so that the majority of human beings are able to go through their entire span of life without symptoms referable to their lower extremities. This seems to be the case even in individuals who are on their feet a great deal at their occupations and play. It is, however, a well-known fact that occupation does play some role in the development of circulatory difficulties in the feet and legs. It is also perfectly true that individuals who lead a sedentary life with as much comfort and relaxation as is possible to obtain are not immune to trouble from their peripheral circulation. Many factors other than occupation play definite roles. Among these are heredity and habits which may be classified as the chief forerunners of such conditions.

A very considerable number of people develop mild difficulties with their peripheral circulation without realizing that such is the case. This may be manifested by a feeling of heaviness in the legs toward the end of the day or a sensation of fatigue which may amount to actual pain. Nature has a tendency to adjust these mild disorders based on a beginning inelasticity of vessels with increasing age. This comes about by the dilatation of smaller vessels supplying the extremities involved, thus adequately carrying a sufficient amount of blood to the parts so that symptoms may never progress beyond this prodromal stage as collateral circulation keeps pace with the sclerotic processes to which we are all subject. On this natural compensatory mechanism depends, in a large measure, the continued health and comfort of the individual, and undoubtedly the majority of individuals do compensate to an extent that they are never cognizant of any real pathological process. In a considerable number of instances, however, this feeling of fatigue may be followed by cramp-like pains in the calves of the legs at night and are relieved only as the patient breathes rapidly into a paper bag, thus producing an excess of carbon dioxide which eliminates the spasm instantly. Another favorite method of relieving such a cramp is for the patient to get up and rub the leg or walk about the room. The next phase of the difficulty is usually manifested by a cramp-like pain which develops when walking. This may manifest itself in the sole of the foot, but more often in the calf of the leg, rarely in the thighs and gluteal regions. This comes on after walking a certain distance. The patient is brought to a halt on account of the pain. After a few moments rest, the pain disappears and the patient can walk a distance equal to the one which brought on the first pain, only to have the cramp-like pain return. This has been termed " intermittent claudication " and is the most common and prominent symptom in peripheral vascular deficiency in the lower extremity. If the patient determines that he will progress in spite of the pain, he will find that he produces marked soreness in the muscles involved which will eventually prevent his walking almost entirely. As the occlusive disease progresses, the patient finds that the distance which he can cover before a pain will appear in the muscle becomes gradually shorter. They are apt not to appeal for help from their physician until they are limited to a few hundred yards or less. Many of these cramp-like pains do appear in the sole of the foot and the patient is inclined to attribute them to fallen arches or his physician to foot strain. It is perfectly true that arch supports do seem to help some of these individuals, particularly if they are made of sponge rubber covered with leather. The physician, however, should be able to recognize this very definite symptom and with it he will find other manifestations which are recognizable at this stage of the disease, such as feeble or absent pulsation in the foot involved.

Following this stage of the disease, there may be slight trauma from paring a toe nail too closely, injuring a callus, or any simple injury which may happen while at work. These ulcerations developing on deficient circulation are excrutiatingly painful. The patient's sleep is disturbed and the physician finds that they do not heal normally. From these ulcerations serious infection, which would be well taken care of in normal circulation may manifest itself in such a way as to produce severe fulminating lymphangitis, progressive gangrene, etc., necessitating early radical amputation. It is this stage of the disease that we most wish to avoid, and if the true condition of the circulation of the foot can be recognized early, it should rarely be necessary to sacrifice the extremity.

The various known pathological states involving the peripheral circulation may be divided into two main groups: One, those involving a gradual obliteration of the vessels supplying the part, comprised of (a) obliterative disease based upon arteriosclerosis, (b) obliterative disease based on thrombo-angiitis obliterans. A differential table helps to sort out these two obliterative types from each other; two, those based on vasomotor spasm of the vessels. Fortunately, in this second group, the disease appears in the upper extremities primarily and is usually more obvious so that here we are concerned almost entirely with the obliterative diseases.

Differential Table

One must mention the fact that there is a type of arteriosclerosis which is very fulminating, appearing at an average age of fifty, described by Monckeberg, the only differential characteristic being that this disease is based upon the pathological finding that the middle of the artery rather than the intima seems to be involved. It is less responsive to treatment than arteriosclerotic gangrene of the senile type and is frequently found on the pathological reports on amputated limbs in the diabetic. Otherwise, it is rare and need not concern us here.

Differential diagnosis

	Vasomotor disturbances—primary vasomotor imbalance, Raynaud's disease	Obliterative arterial diseases	
		Thrombo-angiitis obliterans, Buerger's disease	Arteriosclerosis, senile type
Average age	30	40	60.
Sex	Female, 70 percent	Male	Both.
Nationality	All	Hebrew, 40 percent	All.
Duration of symptoms	Years	Years	Months.
Extremity first involved	Upper	Lower	Lower.
Symmetry	Bilateral and symmetrical	One side at a time	One side at a time.
Gangrene develops	Late	Late	Early.
Local palpation of vessels	Normal	No pulsation	Faint or absent.
X-ray of vessels	Do	Normal	Show marked calcification.
Vasomotor index	Marked	Mild	Slight.

Diabetes.—Diabetes produces arteriosclerosis at an early age. Joslin has found marked arteriosclerosis in young adolescents who have been diabetics since childhood. The degree and extent of arteriosclerosis in the diabetic is definitely related to the length of time the diabetes has existed. People who develop diabetes rather late in life are apt to show more peripheral arteriosclerosis at the age of 60 years than a nondiabetic at the age of 70 years. This should be borne in mind, as the difficulty with which peripheral injuries heal in the diabetic is well known.

Senile arteriosclerosis, which is by far the most common form of all arterial obliterative disease, may never produce any symptoms in the legs that are recognizable by the patient as such. In addition to the slow progressive type of mild symptoms, followed eventually by ulceration and gangrene developing rather rapidly, particularly following trauma, we have sudden occlusion in an otherwise narrowed vessel. This occlusion is undoubtedly due to thrombosis which may be brought about by strain or injury. It more frequently comes about without any unusual strain. Therefore, it is difficult to evaluate sudden occlusion of this type if it occurs in the laboring man while he is actively engaged at work. He and his physician will attribute his sudden disability to his work. I believe that anything short of actual impact over the artery during labor should not be considered as a factor influencing the thrombosis. These sudden occlusions are apt to produce very acute symptoms—pain, blanching, discoloration, and in many instances, eventually gangrene of more or less degree. The individual who has gradually occluded his main channels and is dependent wholly on collateral circulation is much less apt to have a sudden thrombosis of a serious nature than one whose main vessels are still patent but narrowing. It must be emphasized in this disease that the patient may have very little warning of impending danger with prodromal symptoms lasting a short period of time prior to the complete occlusion. In a large series of these cases, the average duration of symptoms prior to hospitalization was less than 6 months. A certain number of these had their disability precipitated by injury of one sort or another, frequently of a very minor character. Fully as many others were apparently entirely spontaneous. The fact must be borne in mind that in all of the individuals having arteriosclerotic obliterative disease, there are comparatively few who develop symptoms or conditions of sufficient seriousness to warrant hospitalization. By far the majority of such individuals do not progress beyond the prodromal stage. They acquiesce to their discomforts and, either through their own devices or through the aid of a physician, tide over their period while collateral circulation is developing to an adequate state and eventually become comfortable. Those who do behave in this manner are apt to be able to lead a comparatively normal but somewhat restricted life.

Thromo-angiitis obliterans form the next large group of cases of obliterative disease. This is characterized by a slow progressive occlusion of the main arteries and veins suplying the extremities in young men. This produces, after a period of time, intermittent claudication either in the foot or in the calf of the leg, or both, with considerable discomfort and feeling of heaviness after use. The foot becomes quite cyanotic on marked dependency. This cyanosis is not the ordinary bluish discoloration but has a distinctly reddish-blue tint and is usually spoken of as "rubor." When this sort of an extremity is elevated to an angle of 45 degrees, it takes on a wax-like, cadaveric hue in a very short period of time. Occasionally (in approximately 20 percent of the cases) there are small areas of superficial phlebitis which manifest themselves by reddened, painful, superficial areas which are tender to touch and which may disappear in one location only to appear in another on the same extremity. This has been termed by Buerger as "migrating phlebitis." If injury is superimposed on an extremity in which this disease has been slowly progressing over a period of several years, one finds that healing will not take place in a normal fashion, that the open lesion becomes excrutiatingly painful, and that it has a tendency to slowly progress, involving more tissue even to a whole digit, or at times the entire foot. These open lesions are so painful that they disturb sleep. They are very much more painful than a similar lesion occurring in an arteriosclerotic. This pain prevents the patient from doing exercises, having proper dressings, getting a sufficient amount of rest, and takes away his appetite. Thus, usually, the individual enters the hospital in a poor state of nutrition, with his nervous system quite upset, so that he is found apprehensive, sitting up with his hands clasped about the knee of the affected extremity, rocking to and fro, in the daytime sleeping a little bit, but at night restless. His fingers are nearly always stained with the tar of cigarettes. He frequently begs for amputation or for opiates to allay his pain. He may have already become a drug or alcohol addict.

In the vasomotor group, we have much less serious lesions in the lower extremities than in the upper. Usually, first we have multiple phase color changes, noticed on exposure to cold and dampness. The digits are noted to go dead white, only to become cyanotic, then red, and as the attack wears off a normal appearance returns. These episodes may be repeated at first only rarely, and finally to manifest themselves many times a day. The length of the attack may vary from a few minutes to an hour or more. If this condition progresses, the continued state of cyanosis may come about with small changes in the subcutaneous tissue producing a thickening which is a firm, like-scar tissue (scleroderma). This may eventually occlude the vessel to such an extent that actual gangrene takes place in the terminal phalanges. In addition to this spontaneous variety, which seems to come on without any warning in nervous and high-strung individuals, we have a type of secondary vasomotor spasm which may come on after peripheral injury. The most common example of this is causalgia as described by Weir Mitchell, occurring following injury to the digit supplied by the median nerve. This may produce such pain that repeated amputations have been done for its relief. This may be true of other nerve distributions, particularly in the dorsum of the foot where painful ulcerations may develop after injury. These may cause prolonged disability and produce a fertile field for all kinds of therapy, most of which are futile. Actual division of the sensory nerve supplying the part is the only effective method of treatment, and this often fails.

At the Massachusetts General Hospital, we have found that certain routine studies and certain routine forms of treatment have been helpful in cases of peripheral circulatory disorders. They are applicable to nearly every patient falling into this category. The routine treatment is particularly helpful to those with the obliterative type of disease.

Routine Study For Cases Of Peripheral Circulatory Disorders

1. Duration of symptoms: When intermittent claudication began, when and how ulceration started, etc.
2. Date and character of injury, if any. Date of ulceration or gangrene. Date disability began.
3. Extent of infection, lymphangitis, ulceration, and gangrene.
4. Description of lesion and vessels. Indicate volume of pulse in vessels, one plus to four plus.
5. Length of time for blanching to occur on elevation, and cyanosis on dependency.
6. Surface temperatures of extremities.
7. Oscillometer readings.
8. Roentgen-rays of vessels of extremities.
9. Photographs of lesions.
10. Degree of pain; i.e. constant, at night only, on change of position, use, etc.
11. Blood sugar on all diabetics—All diabetics and all infections are to be considered as emergencies. Blood cultures on cases with marked infection. Cultures of infected lesions.

After this study has been made or while it is being carried out, the following routine treatment should be started:

Routine Treatment For Cases Of Peripheral Circulatory Disorders

1. Bed with Balkan frame. Extremities elevated on one pillow—heels off mattress.
2. Cradle with electric lights in winter, without lights in summer.
3. Daily foot hygiene (careful application of soap solution followed by alcohol and lanolin.)
4. Refer to the Podiatry Clinic.
5. Open lesions treated with Dakin's solution throughout the day. Those not badly infected treated with boric ointment at night.
6. For pain—aspirin, barituric-acid compounds, etc. (never opiates).
7. Buerger exercises. Position I—From ½ to 2 minutes, depending on time blanching occurs. Position II.—From 1 to 3 minutes, depending on cyanosis

or severe pain. During each position II, have patient dorsiflex, plantarflex, invert, evert, flex toes, extend toes *once*. Position III.—Five minutes, feet wrapped in warm woolen blankets, the extremities to be level with the heart.

8. Force fluids to four quarts a day. Liberal diet.
9. Eliminate tobacco.

Etiological factors.—The actual cause of obliterative arterial disease has not been explained on any specific basis. Individuals who develop arteriosclerotic obliterative disease are not always those who have marked generalized arteriosclerosis. However, these individuals will be usually found with sufficient calcium in their vessels to show clearly in X-ray films. On the other hand, we find many vessels sufficiently calcified to show plainly without any peripheral circulatory manifestations. The question of hard work, whether it be mental or physical, has often been cited as a forerunner of arteriosclerosis. Alcohol and tobacco have been also blamed. Heredity probably plays a greater role than all other factors. We do know that chronic diseases, particularly diabetes, have a marked tendency to favor the development of arteriosclerosis.

One would think from the pathological picture in thrombo-angiitis obliterans which show marked evidences of chronic inflammation that some specific organism would be isolated in this disease. Although Rabinowitz did isolate an organism from patients suffering with this disease by using leeches to suck blood from diseased tissues, this work has not been confirmed by other observers. The disease rarely, if ever, develops in the female. We have had only one case in our clinic in a woman and although the sections of the arteries are consistent with thrombo-angiitis obliterans, the patient has a leutic history and until further study of this particular patient can be made we must withhold the absolute diagnosis for the present. It has been found in greater instances among the Hebrew race, although no nationality seems exempt, as it is very common among the Chinese and Japanese. It must be very rare among the negroes as the questionable female case described above is the only colored person that we have seen that even suggested thrombo-angiitis obliterans. Although our clinic is located in a community composed of a high percentage of Jews, only 40 percent of our cases have been of this race. Tobacco has been blamed for the disease by some of the earlier observers, as many of these cases are heavy smokers. We are sure that it is not the etiological factor, because a few of the typical cases have not used tobacco at all. Certainly tobacco could not explain the ratio between the male and female distribution of this disease in this generation. One must admit, however, that tobacco produces a definite vasoconstrictor influence on the vessels, reducing the volume of blood flow through the hand on an average of 50 percent during the smoking of one cigarette (Freeman and Lamson.) It requires approximately 30 minutes for the extremity to recover from this vasoconstriction and for this reason, tobacco should be entirely eliminated in the treatment of this disease. Inasmuch as the disease is limited to men, one wonders whether or not the etiological factor will not eventually be based on the sex hormone.

Special forms of therapy.—Many forms of therapy have been advocated by various individuals interested in this subject. Among the more prominent ones may be mentioned the use of sodium citrate solution intravenously, large quantities of Ringer's solution by duodenal tube, nonspecific foreign protein, peripheral nerve block, interruption of the sympathetic nervous system supplying the part, and alternating negative and positive pressure in a large boot. All of these methods of treatment are associated with the general measures described above and a considerable amount of detail on the part of some individuals interested in the disease.

Also, one must not lose sight of the fact that time is a tremendously important factor, that if the disease does not progress so rapidly that collateral circulation fails to keep pace with its progress, that eventually the localized areas will heal and the patient again become ambulatory. Amputation has often been done to relieve pain. For this reason we have found that a denervation of the involved foot by actual crushing, cutting, or injecting with alcohol the peripheral sensory nerves supplying the part has allowed a twofold benefit to take place (Smithwick and White). In the first place it eliminates all vasoconstrictor influence to the part and in the second place it makes the patient comfortable so that adequate dressings can be done, proper rest and sleep can be obtained and proper exercises instituted. We feel that many extremities have been saved by this procedure. Sympathectomy, whether it be periarterial or ganglionectomy, has not been efficient in the treatment of thrombo-angiitis obliterans for the reason that the vessels are so narrowed and inelastic that vasodilatation beyond a very limited range is not possible. This has failed in relieving the painful ulcerations and we feel it is much less likely to produce a beneficial result than blocking of the sensory nerves. The use of foreign protein, particularly typhoid vaccine, has been of considerable value but is not as effective as some of the newer methods of treatment. We have failed to see any specific improvement in cases treated by sodium citrate injection or by large quantities of Ringer's solution by duodenal tube. However, we must admit that our experience with this method of treatment has been somewhat limited as the results obtained in the few cases treated in this manner have not encouraged us to pursue the methods further.

We feel that the greatest advance in palliative treatment has been brought about by the alternating negative and positive pressure on the extremity enclosed in a glass boot. This is a modification of Biers' hyperemia which was suggested many years ago for the treatment of this disease. Much credit must be given Landis for his experimental data on this subject, showing that theoretically, this is the most efficient way of developing collateral circulation. However, to Reid and Herrmann, of the University of Cincinnati, we must give the credit for working out the detailed methods of applying this principle. They have developed a so-called "Pavaex" machine which consists of an electric pump which will alternately exhaust part of the air from a glass boot enclosing the foot and apply positive pressure. The machine is so arranged that varying degrees of negative and positive pressure and the duration of each cycle can be regulated. We feel that this offers the greatest possible aid in the treatment of obliterative arterial diseases of all kinds, including peripheral embolus. At present we feel that this apparatus will become a part of the standard equipment of every well-regulated hospital and prove as essential to proper treatment of these conditions as the respirator is to the proper treatment of poliomyelitis.

Rehabilitation.—One must not lose sight of the fact that these individuals are invalided for long periods of time, many of them confined to beds for weeks. If sufficient collateral circulation has been established, one must use utmost care in getting them up and about again. We make it a rule that the first time out of bed for such a patient should be one-half minute out of the hour. This is gradually increased and the patient should not be discharged to his home until he is able to walk for at least 5 minutes at a time without producing extreme cyanosis in his extremity. One must not lose sight of the fact that while one extremity is being treated, the other extremity must be kept in good condition without being subject to pressure sores, particularly of the heel, and that rehabilitation of the better leg is also important as usually both extremities have deficient circulation.

A great deal of care must be taken of the elderly individual who has prodromal symptoms not sufficient to hospitalize him, and the following treatment has been worked out for ambulatory patients. This routine is applicable to the arteriosclerotic with and without diabetes and to the milder cases of thrombo-angiitis obliterans. These general directions are printed on a sheet along with diagrams of the postural-change exercises and modified to suit each individual patient. These instructions are as follows:

Care of the Feet

(Peripheral Circulatory Clinic—Massachusetts General Hospital, 1932)

General directions

1. Wash feet each night with soap and warm water.
2. Dry feet thoroughly; rub gently with rubbing alcohol (70 percent); dry feet, then rub well with toilet lanolin.
3. Always keep feet warm; woolen socks in the winter and white cotton socks in warm weather; use a clean pair each day.
4. Use loose-fitting bed socks instead of hot-water bottles, bags, or electric heaters.
5. Wear shoes of soft leather without box toe, and which fit but are not tight.
6. Keep legs elevated on a chair as much as possible when sitting.
7. Cut toe nails only after a foot bath and in a good light; cut them straight across.
8. Do not cut corns or calluses.
9. Do not wear circular garters.
10. Do not sit with your legs crossed.
11. Do not use strong antiseptics on your feet, such as sulpho-naphthol or iodine.
12. Go to a doctor at the first signs of blister, infection, ingrowing toe nail, or trouble with bunions or calluses.
13. Drink large amounts of water, eat plenty of green vegetables and fruits.
14. Reduce your smoking to a minimum; one pipe full twice a day or five cigarettes a day.
15. Have a member of your family examine your feet once a week.
16. Do your exercises faithfully.

In conclusion, we wish to emphasize the necessity of recognizing an extremity with circulatory deficiency. Every individual who appeals to a physician for pain in the foot or leg, for discoloration, for ulceration which does not heal, or for cramps in the calf of the leg at night, the physician must assure himself that there is adequate circulation. If the routine study is followed, the pulses are felt, the oscillations above the malleoli are obtained by the use of an ordinary blood-pressure machine, he can ascertain with considerable accuracy the state of peripheral circulation. Any individual who suffers an injury to his extremity which causes undue pain or a lesion which fails to heal normally, will show signs of deficient circulation if these routine studies are followed. It is imperative that adequate treatment to develop collateral circulation is established early following such trauma or the terriffic economic loss of major amputation may have to be faced. We must urge physicians to attempt an early diagnosis and conservative measures of treatment, as the percentage of major amputations in these conditions should be low.

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U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Study of the Cause of Increasing Disabilities in Fracture Cases

By William F. Dolan, M.D.

[Read before twenty-first Annual Convention of the International Association of Industrial Accident Boards and Commissions, Boston, Mass., Sept. 24-28, 1934]

This paper is a study to determine, if possible: (1) Whether or not there is an increasing disability period in industrial accidents, particularly in fracture cases. (2) If so, what are the causes? (3) Methods to meet this situation.

The material studied consisted of a detailed analysis of disabilities in fracture cases as reported to the Department of Industrial Accidents of Massachusetts over a period of 10 years between 1922 and 1932. In all there were 37,349 fracture cases. These were analyzed and classified into the following groups: Fatal cases, permanent total disabilities, permanent partial disabilities, and the balance of temporary disability cases were grouped according to the duration of disabilities, from the shorter disabilities of a few days up to the disabilities of weeks, and in the chronic cases a classification was used of 13 to 26 weeks, 26 to 52 weeks, and finally of cases lasting over 1 year. As far as I know, this statistical study is unique.

The study shows that, apart from the cases with short disabilities (up to 26 weeks), which would presumably include the minor injuries, the other curves are all running upward. In other words, we find a definite sharp increase in the disability periods in our major cases.

The study is limited to fracture cases, excluding other injuries, as such cases fairly represent a group of cases in which surgical progress has admittedly advanced greatly, and this sample of fracture case lends itself to a study of this sort, because the disability period naturally would be larger than in nonfracture cases, and it also represents one of our most expensive group of cases.

This very definite prolongation of disabilities is worth detailed study which, I believe, is explained by a group of nonmedical causes. It is found in the trend of decisions by industrial accident boards, by the depression in industry, in the increasing trend toward "doles" by such claimants, etc. This will be elaborated later.

The methods to combat this evil, as far as the medical profession is concerned, are best exemplified by the well organized action of the American College of Surgeons, in its studies on traumatic surgery; the use of organized action is here well illustrated. These studies are very extensive. A careful study of the evaluation of the ability of an injured man to return to work is given. We note, especially in fractures: (1) Quickness in action. (2) Coordination, as contrasted with awkwardness. [1] (3) Strength. [1] (4) Security and confidence. (5) Endurance. (6) Safety. [1] (7) Ability to get suitable work.

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[1] These are perhaps the most important. The present industrial and economic situations do not afford ideal opportunities for rehabilitation of such cases.

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The chairman of the Department of Industrial Accidents of Massachusetts discussed the question with me. His experience dates back 21 years. He comments that the tendency to prolong disabilities need not be limited to a study of fracture cases. It is his impression that increasing litigation, plus the depression in business, combined with increasing compensation benefits under our act, inability to get work, all combine to make the burden increasingly hard when the insurer has to *prove* to the department of accidents that the claimant is no longer disabled. The increasing number of cases of subjective complaints, in the absence of adequate objective finding, comprising the so-called "neuroses", is very evident. This is a development along expensive lines. It is often fostered by the legal advisers of the claimants, who are becoming experts in compensation cases. Such cases of increasing disabilities are very difficult to contend with, and usually such cases require closure with lump sums. Clearly, the medical profession has made wonderful advances in the last decade, and yet we must admit the disability periods are increasing.

One phase of treatment, however, is open to criticism and that is physiotherapy. This had a great vogue after the war and it also was exploited by the commercial houses. I am the first to admit its proper value, but I do feel that it is greatly overdone. After a reasonable amount of it in a given case, use at work would be the best physiotherapy in the world, but this requires cooperation both from the injured and from his employer, and right there we meet resistance. From that point on, absence from real work and continuance of physiotherapy is really harmful. It gets no more real physical results than time itself would offer in the average case. The claimant gets in the habit of calling at frequent intervals for his "treatment" and the idea often becomes fixed in his mind that he really is unable to get back to work. To repeat, these procedures done so routinely often in themselves prolong the disabilities. The common excuse given for their use is that if the insurer does not give them they will be given outside, and that it is a lesser evil to do it ourselves, keeping the case under observation and expense control. My point is that if an injured workman returned to work at the proper time, without such expensive physiotherapy, he would have the equivalent of physiotherapy for weeks and would be better off. Surely, we all have seen cases where men, industrial-accident cases or not, have resumed activities early and have been all the better for it.

Just as too prolonged disuse affects the local result in the fracture case, just so does too prolonged general disuse of the mind and body from work impair the patient's general status. The "patient" ceases gradually from being a "patient", slowly but surely becoming a "claimant." Early use of the injured part is consistent with good surgical opinion. Such voluntary inhibition on the part of the injured workmen, such refusal to return to work until *all* symptoms are over, is a serious problem. The experience of injured workmen in self-insured plants (such as the report of Dr. Clark in the Norton Co. in Massachusetts), shows an average disability in all fracture cases of 38 days and an average cost of $101. These, of course, are not end-result cases, but cases where men have returned to work at special jobs as partial-disability cases.

This study is most important from quite another aspect. The compensation acts have created one of the largest units of socialized medicine. At times doctors have been criticized for profiteering or for prolonging disabilities, but the facts prove that the prime factor is the patient himself. The benefits to the injured workmen have steadily increased so that now we are commonly faced with cases where the compensation will equal the wage. To go further, outside benefits from health or accident policies may actually exceed the wage. Surely, these factors render the date of return to work increasingly remote.

A tendency of the act to study contributory disease, either as it affects or is affected by a given accident, is also on the increase. The widening scope of the act thus in itself tends to prolong some disabilities.

We have noted the fact that the disabilities in fracture cases in workmen is increasing. We have also commented on certain collateral factors of a nonmedical nature that contribute to this, namely, social, legal, the "psychology" of the dole, the broadened scope of the act, etc. This is in *spite* of increasing medical skill. "A well organized" medical movement to counteract this trend is found in the American College of Surgeons, which has a committee on traumatic surgery. Their work is very important and their studies cover the following subjects.

1. *Type of surgeons in traumatic work,* noting the development of clinics operated by the insurer, such as our large clinic in Boston equipped with all modern facilities—X-ray, etc.
2. *Need of more consultations* in industrial work, with education of the general practitioner in this regard, avoiding any interference with his relation to the patient.
3. *Surgeon's fees,* noting the overuse of X-rays in private cases at times by nonexperts.
4. *Failure of insurance companies to get good surgery* is remedied in large part, but at times retarded by "free choice" of physicians. Further improvements could be had with improved consulting services.
5. *Use of proper hospitals and proper use of hospitals.*
6. *Physiotherapy,* as now rendered, "of little value". Helpful in selected cases and then only while showing real benefit; otherwise, a detriment, with the patient doing less and less himself, becoming a "repeater", getting only temporary comfort and becoming a psychological as well as an anatomic patient.
7. *Free choice of physician* regulated by law. In Massachusetts under the act free choice exists.
8. *Increasing use of "aggravation" theory* as well as the probably overdone speculative theory of "lowered resistance" a serious development and very overdone, both by lawyers and doctors but unfortunately not a measurable factor.
9. *Increasing scope of compensation acts.*
10. *Education of medical profession in compensation work* noting the need of instruction in medical schools about the act, need of records, legal phases, rights, duties, etc. There has been a disinclination on the part of many good doctors to interest themselves in compensation cases. The medical phases of the act are highly specialized.

The American College of Surgeons recommends that all hospitals treating traumatic cases be approved by this college. The doctor should be experienced in traumatic surgery, accurate records must be kept, and the end results must be available for study.

In an article by Dr. Roscoe Gray, of the Aetna Life Insurance Co. (Journal of Bone and Joint Surgery, January 1928), read before the American Orthopedic Association, he concludes that "the surgeon trained in fracture work produces better results in serious fractures, but less efficient results in minor fractures, as contrasted with the general surgeon. Also, he proves that the added cost incurred by the trained fracture expert is compensated by decreased disability; this is not true in the minor fractures where the specialist is more expensive and longer disabilities result. This study was made from 34,753 reportable accidents in California. Three subdivisions were made of the fracture cases out of this group, as follows: (1) The San Francisco cases, where specialists treated the serious fractures; (2) other cities in California where good general surgeons were used; (3) towns where the general practitioner was in charge.

Due allowance was made for cases where, because of consultations or transfer, a case would be controlled by more than one type of doctor. The study goes from the year 1917 through 1926. It is to be realized that the specialist will get the *worst* cases. Also, his expenses will be higher as he is more trained to use accessory methods of study (focal infections, etc.), and he will use X-rays more freely, thus increasing consultations, laboratory, and hospital costs. Also, with his patient away from home, neurotic tendencies may be intensified. The question then resolves itself into the justification of the use of the specialist. Clearly, to transfer every patient away from his family doctor would be foolish, but to transfer none would be illogical. This tabulation was made in an effort to find which types of fractures warrant such transfer.

A fractured femur, obviously a major injury, means hospitalized special care. The disability average in this study is 54 weeks, $1,148 in compensation, plus $795 medical expense—in all about $2,000. As might be predicted, the rural disability was three times the city disability. Also the country disability was 12 times greater when the case was referred after the 2 weeks' period. Therefore, such a case should be referred immediately.

In minor fractures, however, the specialist makes a poorer showing than the general surgeon. In fact the country doctor was the most efficient. The probable reason is that the specialist is trained to be cautious, to expect trouble, he rarely sees the "so-called" minor cases, and he will be more conservative with such injuries. The specialist took 6 weeks for a fractured finger, the general surgeon 4 weeks—this is a difference of 50 percent in a common type of injury.

Fractures of the metatarsal and of the metacarpals are best treated by trained men. The possibilities of disturbances in the mechanics of the feet or hands warrant careful treatment. The figures, however, show no particular difference in the disability periods or of the cost when treated by any of the three groups.

With open operations of fractures, as could be expected, the disabilities were worse in the country group. Such work should be limited to experienced operators and not done by the occasional operator. These statistics, however, show that one-third of these cases were done by the country group.

In a group of fractures of intermediate severity, such as the radius and ulna, we find all three groups of doctors treating them, depending upon the apparent severity of the individual case. With the radius and ulna combined, the general surgeon showed as good results as the specialist. In fact the general surgeon got his cases back to work more quickly. Furthermore, the country surgeon got as good results with about one-half the medical cost. In a general way, this is true of the "intermediate" type of fracture—the specialist does not reduce the disability in the long run, but he does increase the cost. This is explained by the fact that the general practitioner is closer to his patient. He can get him back to the job more quickly; he will minimize the neurotic tendencies; his expense will average lower, as he will not have the costs that the specialist will have. A corollary, as might be found in any case where two groups of people approach the same problem from two different directions, is that each group may go too far. The general practitioner should use more of the accessories, especially in his serious cases, and the specialist should dispense with some of his costs, especially in the minor cases. Secondly, the general practitioner often permits too early return to work, with resulting recurrences, etc.; whereas the specialist pays too little attention to the date of return to work. The specialist's attention might be attracted to returning his patient to work at as early a date as is safe. The points to be emphasized again are the omission of needless treatment and loss of time from work.

This California study also shows that a good anatomic result obtained from a specialist may cause a longer disability than a good functional result obtained by a rural general practitioner. Psychology may outweigh surgery. The injured workman treated in his own community by his own doctor often gets back to work more quickly than the injured city workman, perhaps a stranger in a strange hospital, even though in the city he will get better surgery as such. The disability from the earlier return to work with perhaps a poorer anatomic result is compensated, however, by the earlier occupational use of the injured part.

To recapitulate, we agree that the disability periods in fracture cases are increasing, due to nonmedical factors. Fracture disabilities represent a fair index of the general trend, and the same study of disabilities after head injuries and back sprains would show the same increasing disabilities.

In conclusion, may I describe what we are doing in our Boston clinic? This is well equipped in all details. Each case is completely studied from the X-ray standpoint by consultations when needed, and physiotherapy supervised to prevent abuse from overuse of this method of treatment. Rehabilitation at suitable early work of course is a hard problem during the industrial depression, but such placements are constantly attempted. Fresh fracture cases, even of a minor character, are hospitalized. We try to see all fracture cases and to cooperate in their treatment with the patient's own doctor.

In cases where a neurosis is anticipated an early financial settlement, if possible, is advised. The standards of the American College of Surgeons relative to treatment, etc., are maintained. Operative measures, which might be considered in private nonindustrial cases—such as fusion operations, are avoided as much as possible. Such operations demand cooperation from the patient to a degree not satisfactorily present in the average compensation patient. These patients often want, not treatment to a point where disability ceases, but 100 percent restitution of the injured part, which may not always be possible. Therefore, attention to even minute complaints and small details in handling such patients is required, even at the expense of "overtreatment." This is warranted by the results of our work before the Department of Industrial Accidents of Massachusetts, where in the last analysis the disability periods in the major cases will be checked off. A reputation for an unbiased honest medical opinion as to the ability to resume work by a patient is of invaluable aid in this regard. It outweighs much of whatever else may be presented by the claimant. This confidence in our statements to the Department of Industrial Accidents of Massachusetts exists on the part of the board members, and I stress it as being very important in cutting down excessive disability claims.

I do not presume to discuss the technical methods employed in treatment of these cases, as they are well known, both here and abroad, but I do submit some publications of the American College of Surgeons which may prove valuable.

Massachusetts workmen's compensation statistics, Department of Industrial Accidents—Fracture of upper and lower extremities for period of 10 years between July 1, 1922, and June 30, 1932

[Department work year extends from July 1 to June 30]

Extremities	Total cases	Deaths	Permanent total disabilities	Permanent partial disabilities	Number of cases, temporary disabilities									
					1 to 3 days	4 to 7 days	1 to 2 weeks	2 to 4 weeks	4 to 8 weeks	8 to 13 weeks	13 to 26 weeks	26 to 52 weeks	Over 1 year	Total
1922														
Upper	1,672	2	------	9	33	59	85	240	639	351	196	57	1	1,661
Lower	1,301	11	------	11	16	48	53	200	362	236	234	128	2	1,279
Total	2,973	13	------	20	49	107	138	440	1,001	587	430	185	3	2,940
Percentage	------	------	------	------	------	------	------	------	------	------	14.6	6.3	0.102	------
1923														
Upper	1,925	8	------	1	45	101	111	271	709	387	236	52	4	1,916
Lower	1,863	11	------	6	22	73	106	319	482	353	375	108	8	1,846
Total	3,788	19	------	7	67	174	217	590	1,191	740	611	160	12	3,762
Percentage	------	------	------	------	------	------	------	------	------	------	16.2	4.5	0.3	------
1924														
Upper	1,739	2	------	5	31	81	95	277	637	362	171	74	4	1,732
Lower	1,701	15	1	13	9	67	97	269	515	304	260	149	2	1,672
Total	3,440	17	1	18	40	148	192	546	1,152	666	431	223	6	3,404
Percentage	------	------	------	------	------	------	------	------	------	------	12.3	6.5	0.17	------
1925														
Upper	1,652	8	------	2	28	69	92	287	618	293	179	74	2	1,642
Lower	1,631	11	------	2	4	54	106	265	506	270	258	141	14	1,618
Total	3,283	19	------	4	32	123	198	552	1,124	563	437	215	16	3,260
Percentage	------	------	------	0.1	------	------	------	------	------	------	13.4	6.5	0.49	------
1926														
Upper	1,691	6	------	9	26	82	86	268	718	279	156	53	8	1,676
Lower	1,552	7	------	14	19	61	63	247	480	279	234	129	19	1,531
Total	3,243	13	------	23	45	143	149	515	1,198	558	390	182	27	3,207
Percentage	------	------	------	0.7	------	------	------	------	------	------	12.1	5.6	0.84	------

Massachusetts workmen's compensation statistics, Department of Industrial Accidents—Fracture of upper and lower extremities for period of 10 years between July 1, 1922, and June 30, 1932

Extremities	Total cases	Deaths	Permanent total disabilities	Permanent partial disabilities	Number of cases, temporary disabilities									
					1 to 3 days	4 to 7 days	1 to 2 weeks	2 to 4 weeks	4 to 8 weeks	8 to 13 weeks	13 to 26 weeks	26 to 52 weeks	Over 1 year	Total
1927														
Upper	1,739	3	1	6	40	88	98	278	660	305	170	74	16	1,729
Lower	1,725	12	1	14	22	79	88	303	550	265	229	135	27	1,698
Total	3,464	15	2	20	62	167	186	581	1,210	570	399	209	43	3,427
Percentage	------	------	------	0.6	------	------	------	------	------	------	11.6	6.0	1.23	------
1928														
Upper	1,669	2	------	27	22	47	69	266	644	322	163	87	20	1,640
Lower	1,781	12	------	31	20	60	91	287	562	310	233	139	36	1,738
Total	3,450	14	------	58	42	107	160	553	1,206	632	396	226	56	3,378
Percentage	------	------	------	1.7	------	------	------	------	------	------	11.7	6.7	1.65	------
1929														
Upper	1,794	4	------	17	23	76	86	261	690	330	185	103	19	1,773
Lower	1,918	15	------	27	28	82	97	307	596	289	267	147	63	1,876
Total	3,712	19	------	44	51	158	183	568	1,286	619	452	250	82	3,649
Percentage	------	------	------	1.1	------	------	------	------	------	------	12.3	6.9	2.27	------
1930														
Upper	1,919	1	------	13	28	59	71	264	758	378	223	102	22	1,905
Lower	2,066	13	2	18	29	79	110	313	623	346	279	186	68	2,033
Total	3,985	14	2	31	57	138	181	577	1,381	724	502	288	90	3,938
Percentage	------	------	------	0.8	------	------	------	------	------	------	12.7	7.9	2.53	------
1931														
Upper	1,572	1	------	19	22	35	68	211	615	295	175	119	12	1,552
Lower	1,696	13	------	32	21	53	82	231	516	290	212	177	69	1,651
Total	3,268	14	------	51	43	88	150	442	1,131	585	387	296	81	3,203
Percentage	------	------	------	1.6	------	------	------	------	------	------	12.0	9.2	2.52	------
1932														
Upper	1,333	------	1	14	14	43	31	180	519	264	146	104	17	1,318
Lower	1,410	7	------	29	12	44	47	189	444	218	202	165	53	1,374
Total	2,743	7	1	43	26	87	78	369	963	482	348	269	70	2,692
Percentage	------	------	------	1.6	------	------	------	------	------	------	12.9	9.9	2.60	------

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U.S. DEPARTMENT OF LABOR

BUREAU OF LABOR STATISTICS

Progress Made in the Prevention of Industrial Injuries

By James L. Gernon, *Director of Division of Inspection, New York State Department of Labor*

[Read before the joint session of the International Association of Governmental Labor Officials and the International Association of Industrial Accident Boards and Commissions, held at Boston, Mass., September 27, 1934]

In presenting this paper it may be advisable to state that part of it is based on information obtained from a recent examination I personally made of 115,000 employers' reports of industrial injuries furnished to the commissioner of labor of New York State as required by the compensation law of the State. For several years we have been furnishing inspectors in New York State with photostatic copies of the employers' reports of industrial injuries, the purpose of which is to provide the inspectors with knowledge of the injuries occurring in the establishments they are responsible for inspecting. This enables the inspector to know the number, frequency, and character of the injuries reported for a certain establishment, and enables him intelligently to aid the employers in preventing a recurrence of the injury, if it is possible to do so, by the installation of proper safeguards or by discontinuing unsafe practices.

In order to know the full value of the information these reports would furnish for inspection work, I imposed upon myself the task of reading them. This entailed a great amount of additional work for which I have been fully repaid, for in examining these reports I have confirmed my own theories as to the causes of many industrial injuries, which theories were the natural result of many years of contact with State inspection of industries and the prevention of industrial injuries.

Those of us who can recall industrial conditions existing 25 years ago have seen the transformation that has taken place as to methods of manufacturing, and the development of legislation governing industry, and in the light of what has happened it is reasonable to assume that the end of this advance has not yet been reached.

While progress in industrial legislation has been advancing slowly in many States, we should not lose sight of the fact that in a number of States little progress has been made, and that even in the States with the most advanced industrial regulations there is still necessity for considerable improvement if we hope to prevent or reduce industrial injuries to the lowest possible number.

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Modern industrial management realizes that a human being, so necessary to the proper conduct of industry even in this so-called "machine age", is entitled to healthful and safe conditions in the pursuit of his daily labor.

In the old order of industry the workers assumed the risk and carried all the financial burdens resulting from unhealthful or unsafe conditions in industry, in addition to the physical suffering and handicap incident thereto. Many States have changed this in a degree by providing for compensation awards which pay for a portion of the loss suffered by those injured in the course of their employment. Even in the new order of things the worker still suffers much of the financial loss and endures the physical handicap of industrial injuries.

The injustice of the old order of things was generally condemned, because most of our people in and out of industry realized that these industrial injuries were in a very large measure preventable. This being so, they imposed a tremendous unnecessary financial loss, as well as suffering and handicap, on those injured.

These changes in public opinion have taken place at a time when science and industry have made greater progress than in any like period in the history of the world—a period that has been termed the "machine age" because more work is done by the use of machines and power than at any other time in the world's history. And today there are those who claim machinery is displacing labor in industry. Regardless of how efficient these machines may be, they are of little use without human operators. Whether machinery is displacing labor to its detriment may be a debatable question.

It cannot be disputed, however, that in most instances modern machinery has greatly speeded up production, not alone at the machine itself but all along the line of production, in numerous industries. This speed requires greater dexterity, as well as physical fitness, on the part of the machine or line operators, and makes it necessary that there be a proper lay-out and arrangement of the machine or production line properly to protect employees from injury.

Inspection of industrial plants can and has improved working conditions to a high degree where the laws are adequate to cover industrial conditions as they exist today. However, inspections alone will not accomplish all that should be done.

To reduce industrial injuries there must be adequate legislative regulations empowering State departments further to protect workers. There should be other means than the mere providing of safeguards for machinery or other hazardous conditions. Statistical records show that most of the industrial injuries are due to other causes than machinery or apparatus. Most of them will be found in several groups of work over which the labor laws fail to provide requirements which would tend to reduce the number or correct the conditions which cause the injury. Ample authority is necessary to prevent manufacturing in inadequate floor areas, causing the improper placing and spacing of machinery, equipment, and material. These conditions are the basic cause of many industrial injuries.

Nothing demonstrates more forcefully the necessity and value of inspection of industrial establishments than the hundreds of millions of dollars paid annually in the United States as compensation awards for industrial injuries, and the fact that these payments are but a small portion of the loss caused by these injuries.

Employers and insurance carriers complain of the cost of awards for industrial injuries. Can they contemplate how much larger the cost would be if there were no State regulations and inspections to make working places safe in order to prevent injuries?

We can record the number and figure the cost of industrial injuries reported to State boards or commissions. It is unfortunate, however, that it is impossible to record the number, or even estimate the saving in money value, of the industrial injuries prevented by the inspection of industrial establishments.

While the aggregate payments for compensation are large, they in no adequate degree compensate those unfortunate enough to be injured during the course of their employment. No matter how briefly or extensively we examine into the application or administration of compensation laws as to how satisfactorily they recompense those injured in industry, we are confronted with the realization that prevention of industrial injuries is of more importance than the payment of compensation for such injuries, subject as such awards and payments are to delay even under the best workmen's compensation laws efficiently administered.

The type of industrial inspection of which I speak means, not alone the prevention of industrial injuries by the installation of high standard safeguards, but the construction of new machinery by the manufacturer so that the hazard of operation is eliminated as far as possible; the providing of sufficient floor space properly to locate machinery, equipment, and material, so as to minimize the possibility of injury in hazardous operations; the installation of equipment and apparatus for the protection and preservation of the health and comfort of those employed, such as the maintenance of proper temperature and humidity, and the removal of injurious dust, gases, fumes, etc.

After all of these things have been done, there would still remain the onerous task of advising the owners and management of industries of the necessity of properly instructing or teaching their employees how to perform their work safely. It requires only a casual examination of several hundred employers' reports of injuries, furnished in connection with compensation claims, to convince anyone who has a fair industrial knowledge that too large a percentage of industrial injuries result from the inability of the worker to use the human body properly in the performance of his work, or the lack of knowledge as to how to perform his task properly and safely.

It is becoming more evident each day that if we hope to protect workers from injuries in our industries as conducted at present, the industries should be required to teach their employees how to work safely, which means efficiently. This includes teaching them to use the human body as nature intended. This policy will have to be adopted and applied before we may hope to eliminate the larger proportion of industrial injuries which result from other causes than unsafe machinery or apparatus, equipment, or structural conditions. Many injuries are the result of human failure, industrial inexperience, inadequate strength or fatigue, and it is in these groups of causes of injuries that owners and managers of industrial establishments are inclined to attribute the injuries to the carelessness of the employee.

When we approach the work of prevention of industrial injuries in this manner we can expect to accomplish what is most desirous—

the prevention of much of the misery and suffering resulting therefrom, as well as the reduction of the appalling number and excessive cost of industrial injuries in the United States.

It would be well at this point to realize that many industrial establishments are not as efficiently equipped or conducted as competently as many of us may imagine. In all lines of industry there are what may be considered high standard plants or establishments, but they are few compared with the whole number of plants both large and small in the same line of industry. It is well to bear in mind that these plants decline by degrees from the highest standard to the poorest type. When we speak of "high standard" we mean a plant with proper working conditions, instruction of employees in the correct method of performing work, and with a low record of injuries compared to the hazard of the particular industry and the man-hours worked in the various hazards of the establishment.

The industrial inspection force of any State can substantiate the fact that there are far too many industrial plants that either disregard the common principles of safety, or they fail utterly to conduct the manufacturing operation so as to promote safety or protect their employees from injury.

For the past 20 years there has been progressive development in most of the States in workmen's compensation provisions, and it naturally follows that some States have better compensation laws than others. While this development of the compensation law has been going on, no State has increased its force of inspectors or developed its inspection work, which means the prevention and reduction in number of industrial injuries, in any measure or degree comparable to the increase in the number of industrial injuries or the increase in the cost of compensation awards.

Most of the States from time to time add some good provision of law for the protection of employees without making any or adequate provision for additional inspectors to enforce the added provisions. These measures may in themselves be admirable, but without proper enforcement they are of no value. The duty of enforcement then falls on an already overburdened inspection division with an already inadequate number of inspectors.

Many times these beneficial provisions of the labor laws are enacted so legislators may receive credit for the enactment, or they are passed to appease the public demand for such legislation. In many instances legislators willfully fail to provide additional inspectors for proper enforcement.

The time has arrived when State departments should take proper measures to increase their inspection force to an adequate number properly to promote the prevention of industrial injuries. In doing this the increase in the force should be in fair proportion to the many millions of dollars paid annually for compensation awards for industrial injuries. I am not advocating the enlargement or development of inspection of industrial plants so that there may be more jobs, or that industry may be harassed by inspectors who might do this work in a perfunctory manner. I am advocating this as a practical measure for saving many thousands of employees from injury, and reducing by many millions of dollars the cost of awards for compensation.

The management of any plant who is really sold on safety is usually ready to welcome a trained inspector, experienced in his work. The efficient plant owner or manager will know that the orders or advice given by such an inspector are necessary and practical in improving health conditions or preventing injuries. Where the management disapproves of inspection of the plant, it is generally the place where inspection is most necessary.

It may be that in times such as the present, owners will experience difficulty in finding money to make the necessary changes, but when business conditions are normal, it is not as difficult as many may suppose for State inspectors to secure improved conditions in industrial establishments, provided there is on the part of State authorities a reasonable but determined intent to enforce the provisions of law. There is always a certain percentage of employers who will do nothing to comply with the requirements of the law until forced to do so by the State authorities. It is a sad commentary on industrial owners and managements that a large percentage do not know what to do relative to promoting the health of their employees, and preventing injuries incident to the industry in which they are engaged, until they are shown what to do by those responsible for enforcing the requirements.

Regardless of whether an industrial establishment is making or losing money, we have advanced too far for those conducting industrial establishments not to realize that the policy is firmly established that they have no right to conduct an industry so as to subject employees to health hazards or industrial injuries. The employer is entitled to the profits that may accrue from his enterprise, but there is every reason for him so to equip and conduct his establishment that the employees are protected, and not subjected to industrial hazards incident to the industry.

If there is a real desire to prevent industrial injuries it can be done by preventing avoidable injuries which consist in the main of happenings which are unnecessary, and by the application of intelligent effort on the part of industry properly directed by the inspection division of a State department.

Due to lack of time it is not possible to outline here the details of such inspection method, but at this time permit me briefly to outline just one phase of safety work that might be accomplished if we had an inspection force of sufficient number to do the work necessary.

For this purpose we will use the tables prepared by the statistical division of the New York State Department of Labor of closed compensation cases for the year 1933, showing the cause of the injury, the number, the cost per case, and the aggregate cost of each group of injuries, and also the number of death and permanent total, permanent partial, and temporary cases.

These New York figures will illustrate the conditions in any other State in proportion to the industries existing in each State, for what is happening in New York State is also happening in the other States in a greater or lesser degree in comparison with the number and type of industries in the State.

NUMBER AND COST OF COMPENSATED ACCIDENTS IN NEW YORK STATE, BY CHIEF CAUSES—CASES CLOSED IN 1933

[Prepared by division of statistics and information, New York State Department of Labor]

Cause of accidents	Total cases					Death and permanent total			
	Total number of cases	Total compensation [1]	Total weeks [1]	Average compensation per case	Average weeks per case	Total number of cases [2]	Total compensation	Total weeks [1]	Average compensation per case
Handling objects and tools	27, 320	$5, 392, 165	381, 742	$197	14	(24) 95	$952, 736	95, 000	$10, 029
Handling objects	21, 516	4, 266, 930	301, 657	198	14	(21) 76	786, 508	76, 000	10, 349
Using hand tools	5, 804	1, 125, 235	80, 085	194	14	(3) 19	166, 228	19, 000	8, 749
Falls of workers	16, 227	7, 120, 882	563, 737	439	35	(47) 227	1, 749, 641	227, 000	7, 708
Falls to a different level	7, 538	4, 571, 174	371, 775	606	49	(33) 175	1, 354, 573	175, 000	7, 740
Falls on the same level	8, 689	2, 549, 708	191, 962	293	22	(14) 52	395, 068	52, 000	7, 597
Mechanical apparatus	9, 031	3, 422, 979	284, 020	379	31	(15) 107	745, 580	107, 000	6, 968
Machinery, prime movers, etc	7, 658	2, 244, 001	165, 410	293	22	(5) 32	259, 493	32, 000	8, 109
Elevators, hoists, and conveyors	1, 373	1, 178, 978	118, 610	859	86	(10) 75	486, 087	75, 000	6, 481
Vehicles	7, 043	3, 959, 967	397, 433	562	56	(28) 254	1, 623, 447	254, 000	6, 392
Falling objects	3, 564	1, 554, 324	133, 878	436	38	(14) 71	579, 502	71, 000	8, 162
Dangerous and harmful substances	4, 113	1, 424, 796	141, 129	346	34	(9) 98	747, 118	98, 000	7, 624
Electricity, explosives, heat, etc	2, 670	998, 732	106, 030	374	40	(5) 79	567, 658	79, 000	7, 186
Harmful substances	1, 443	426, 064	35, 099	295	24	(4) 19	179, 460	19, 000	9, 445
Stepping on and striking objects	3, 716	588, 259	46, 487	158	13	(2) 17	120, 387	17, 000	7, 082
Other and indefinite	3, 473	1, 210, 837	110, 333	349	32	(9) 61	468, 794	61, 000	7, 685
Total, all causes	74, 487	24, 674, 209	2, 058, 759	331	28	(148) 930	6, 987, 205	930, 000	7, 513

Causes of accidents	Permanent partial					Temporary				
	Total number of cases	Total compensation [1]	Total weeks [1]	Average compensation per case	Average weeks per case	Total number of cases	Total compensation	Total weeks	Average compensation per case	Average weeks per case
Handling objects and tools	4, 684	$2, 396, 939	148, 949	$512	32	22, 541	$2, 042, 490	137, 793	$91	6
Handling objects	3, 311	1, 666, 660	103, 024	503	31	18, 129	1, 813, 762	122, 633	100	7
Using hand tools	1, 373	730, 279	45, 925	532	33	4, 412	228, 728	15, 160	52	3
Falls of workers	3, 036	3, 383, 710	200, 778	1, 115	66	12, 964	1, 987, 531	135, 959	153	10
Falls to a different level	1, 584	2, 099, 196	121, 784	1, 325	77	5, 779	1, 117, 405	74, 991	193	13
Falls on the same level	1, 452	1, 284, 514	78, 994	885	54	7, 185	870, 126	60, 968	121	8
Mechanical apparatus	3, 253	2, 230, 217	144, 196	686	44	5, 671	447, 182	32, 824	79	6
Machinery, prime movers, etc	2, 675	1, 697, 918	112, 143	635	42	4, 951	286, 590	21, 267	58	4
Elevators, hoists, and conveyors	578	532, 299	32, 053	921	55	720	160, 592	11, 557	223	16
Vehicles	1, 744	1, 596, 585	92, 628	915	53	5, 045	739, 935	50, 805	147	10
Falling objects	871	510, 040	31, 593	586	36	2, 622	464, 782	31, 285	177	12
Dangerous and harmful substances	364	380, 232	23, 181	1, 045	64	3, 651	297, 446	19, 948	81	5
Electricity, explosives, heat, etc	292	272, 503	16, 711	933	57	2, 299	158, 572	10, 319	69	4
Harmful substances	72	107, 729	6, 470	1, 496	90	1, 352	138, 875	9, 629	103	7
Stepping on and striking objects	445	243, 948	14, 637	548	33	3, 254	223, 924	14, 850	69	5
Other and indefinite	737	473, 539	30, 290	643	41	2, 675	268, 504	19, 043	100	7
Total, all causes	15, 134	11, 215, 210	686, 252	741	45	58, 423	6, 471, 794	442, 507	111	8

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[1] Includes the standard weighting of 1,000 weeks and the estimated present value for each death and permanent total disability case.

[2] Figures in parentheses show the number of permanent total disability cases included.

There is considerable significance in these figures when carefully analyzed with a full knowledge of what is occurring in our industrial establishments.

These statistical tables of closed compensated cases in New York State for the year 1933 indicate clearly that the group of injuries due to "handling objects and tools" is the greatest in number of cases and second in total cost of compensation. The group "falls of workers" is second in number of cases but first in total cost of compensation. The group "mechanical apparatus", including elevators, hoists, and conveyors, is third in number of cases but fourth in the cost of compensation. Mechanical apparatus is responsible for 12 percent of the total number of cases and 13 percent of the total cost of compensation paid to claimants. When we compare the number of cases due to mechanical apparatus with those due to falls of workers, we learn that falls were responsible for over 20 percent of the total number of cases, and over 28 percent of the total cost of compensation paid.

Suppose we make another comparison with the injuries caused by "mechanical apparatus", in which group we should bear in mind is included the injuries due to elevators, hoists, and conveyors used in the largest industrial State, with the four groups, "Handling objects and tools", "Falls of workers", "Falling objects", "Stepping on or striking objects", we find these four groups of cases are responsible for over 68 percent of the total number of cases and over 59 percent of the total cost of compensation paid. If we can realize the vast amount of machinery and apparatus used in the industries of New York State and the speed with which many of our industries operate, we may be able to imagine how necessary it is for the machine operators to be possessed of acumen and adroitness to perform their work safely.

We have made headway in making machinery reasonably safe for employees. We have not accomplished all that is necessary or desired; more will be accomplished when State legislators see the light, and learn that prevention of industrial injuries would be far better for those injured, for industry, the public, and the State, than the payment of compensation, regardless of how generous the awards may be or how expeditiously the awards are paid.

It would be reasonable to suppose that in an industrial State machinery would cause more injuries and cost more money than those in any other group. A large number of people in and out of industry are unable to conceive that "Falls of workers" in industry, which is the second highest group in total number of cases and the high group in cost of compensation paid, is a far greater menace to those in industry than all the machinery, elevators, hoists, or conveyors in all the industrial establishments of the State.

Again, if we consider the four groups—namely, "Handling objects and tools", "Falls of workers", "Falling objects", and "Slipping on and striking objects"—which combined are responsible for over 68 percent of the total number of cases and over 59 percent of the total cost of compensation paid, these four groups include industrial tasks and occupations many of which are difficult to safeguard, if not, in some instances, impossible to do so. In other words, these groups include work and operations where the employees must be taught the proper method of performing the work, and this instruction should include not alone the tasks the operator is engaged to do but also the proper use of the human body to perform the tasks in order to protect him from injury. Many of the injuries in these four groups are the result of the employee's inability to coordinate his body movements to accomplish his work without injury. Far too many men are placed at difficult and hazardous tasks in industry without proper instruction by the management, and because of lack of knowledge of the work, or the requisite strength or skill to perform the task for a number of hours, injury results.

Speed in the operation of machines or in industrial operations may be advisable and perfectly proper, but there is a limit to human endurance. When employees have to use normal body movements to perform their work and keep pace with high-speed machines or industrial operations, movements of the body must be made correctly, and where such condition exists it is the management's obligation to see that the machines, equipment, and operating floor space are properly arranged and maintained for the protection of employees.

Industrial inspection work of State departments has made real headway as to safeguarding machinery and other unsafe conditions where they have laws which cover the hazards of industry, and they have made the headway even with the handicap, in most instances, of an inadequate inspection force. With proper regulation and an ample force of inspectors a far greater reduction in industrial injuries could be made. What means have we at our command today in any State properly to teach industry and its management the way in which they should proceed to prevent the injuries in the four groups which in New York State are causing 68 percent of the total number of closed cases and 59 percent of the total cost of compensation paid? It is well to bear in mind that in these four groups most of the injuries cannot be prevented by installing safeguards, but the reduction must be the result of proper knowledge of the operations, the correct use of the human body, and the exercise of diligent care on the part of the workers.

Some State departments have the authority to correct the unsafe conditions of floors, walkways, and stairways. Our examination of 115,000 employers' reports of industrial injuries in New York State reveals that a very large percentage of these falls occur where there are no defective floor surfaces or stairways. These reports as submitted show in a large number of instances that there is no other reason for the falls but the physical inability of the workers to maintain a proper poise or body balance, and much of this is due to the inability of a very large percentage of our people to use their feet or legs in a proper way to travel safely on a floor or stairway. Incidentally, we might say industrial injuries result in a large degree from the failure of the human body to function efficiently or properly in performing the various movements necessary in industry.

The New York State record of closed compensated cases for the year 1933 gives sufficient proof that this is so. If we consider "Falls of workers", we find there were 16,227 cases divided as follows: 7,538 "Falls from different levels"; 8,689 "Falls on same level." Over 53 percent of the total number were on a level surface.

The human body as a whole when functioning properly is a complete demonstration of balanced mechanism, more marvelous and more delicately stabilized and coordinated than the finest watch or machine. This is especially true of the human foot as a part of this wonderful body. The watch or machine performs merely the same movement again and again, while the human body, and particularly the foot, must perform thousands of varied actions or movements, each requiring an instantaneous adjustment of the entire mechanism, and must do this in many instances under tremendous stress.

The human body is out of all proportion architecturally to the narrow base formed by the feet. Equipose depends upon the perfect coordination of the nerves and muscles, and the correct control of the lever-like bones, fulcrums, and shifting surfaces of the feet.

Unbalanced feet means unbalanced postures which usually result in falls.

Leading podiatrists of this country claim that 3 persons out of 5 in the United States suffer from some form of foot trouble. Leading oculists of this country claim that only 10 percent of our people have normal eyesight. If these estimates of the infirmities of our people are correct, then we must admit that those employed in our industries are working under a severe handicap. Regardless of the correctness of the estimates of the infirmities of our people, we must realize that many industrial injuries result from one or the other, or both, infirmities.

You may have noticed that I have not referred in this paper to industrial accidents. Most of the occurrences where workers are injured are not accidents; they are sure to happen if many of the practices and methods employed or permitted in many industries are continued. We may marvel that they do not occur more frequently than they do.

Industry should be responsible for teaching the art or technique of performing the work of the particular industry. It is clearly evident from the records of injuries that most of them are not caused by machinery, but are in other groups of causes of injury. It is to these groups that intelligent prevention efforts can be applied. The inspection division of a State department can be of great assistance to the employers in pointing out just what is happening in their establishments, and how the recurrence of injuries may be avoided. What is needed is an inspection force of adequate number to assume the additional work it would impose on the inspection force of a State department of labor.

I realize that I have given here but a brief outline of the kind of prevention work we will have to do in the near future if we intend to reduce the havoc caused by industrial injuries. Brief as is this outline, I trust enough has been said to cause helpful discussion.

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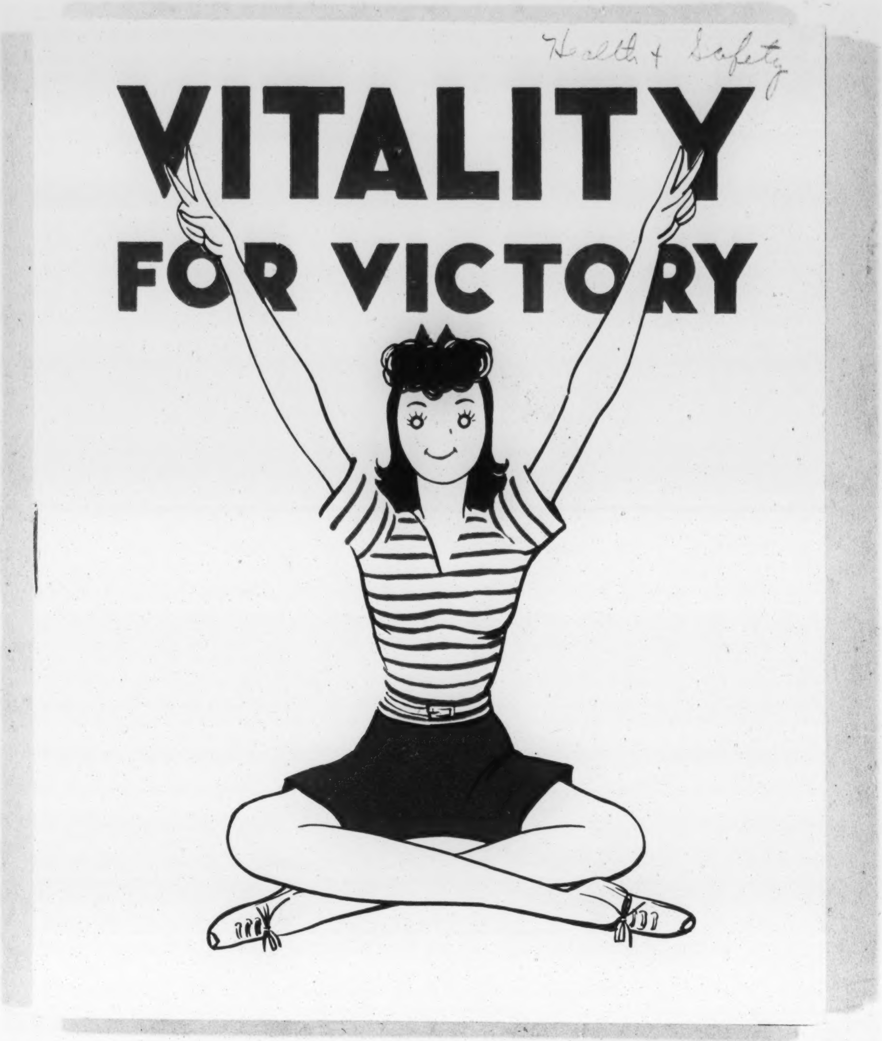

Health + Safety

VITALITY FOR VICTORY

Illustrations by
Mildred Wetmore

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600 Lexington Avenue
New York, N. Y.

WOMEN AT WORK

YOU OWE IT TO YOUR COUNTRY

to be

Physically Fit

Mentally Alert

Spiritually Strong

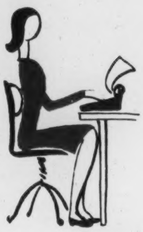
We suggest that you follow the Y.W.C.A. Health Code:

- CHECK with your physician. Adapt your program to your capacity.
- BALANCE work with play; exercise with rest. Keep good health habits.
- STRENGTHEN your body; build gradually for flexibility and endurance.
- REFRESH yourself regularly with a hobby.
- CHOOSE your food wisely.
- LEARN to relax.

"Our need is not for a sudden gay bravery; it is for an enduring courage."

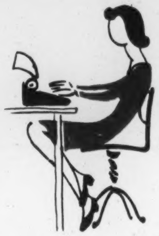
Do You Sit at Your Work?

MAKE IT EASIER!



Firm Astern — like this

Don't be a Tail-sitter —
like this



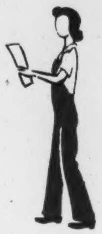
- Stand up
- Bend and Stretch
- Shrug Your Shoulders
- Nod Your Head—Yes—No
- Adjust Your Seat

On your own time go outside and walk around.

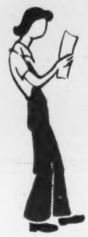
Do You Stand at Your Work?

SAVE YOUR STRENGTH!

Stand easy — like this



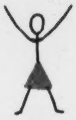
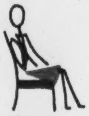
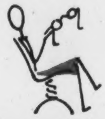
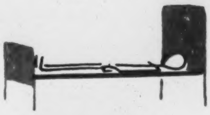
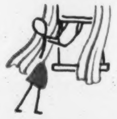
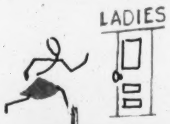
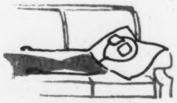
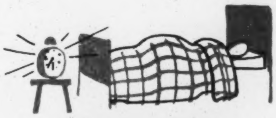
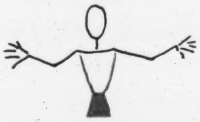
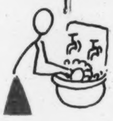
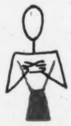
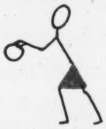
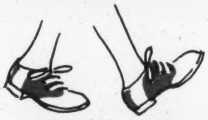
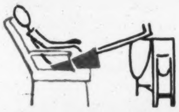
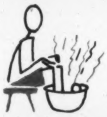
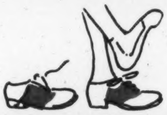
Don't be a Droop—
like this



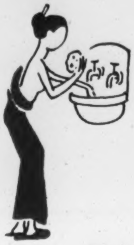
- Sit Down
- Put Your Feet Up
- Swing a Leg
- Wear Low Heels
- Shift Position

On your own time lie down or walk around.

STOP DANGER SIGNALS TO PRODUCTION

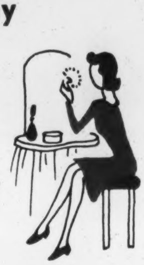
BACK ACHE	 cat stretch	 pillow roll	 adjusted seat	 flat bed
HEAD ACHE	 fresh air	 don't wait	 rest eyes	 snooze long
HANDS ACHE	 snappy shake	 soapy scrub	 massage	 play games
FEET ACHE	 roomy flats	 rest them high	 a good soak	 wiggle your toes

Do You Keep Clean?



FRIENDS DEMAND IT!

Wash all over every day



Don't just add another layer

Keep every stitch fresh and clean

Brush teeth twice a day

Brush hair daily and shampoo regularly

Keep nails short and clean

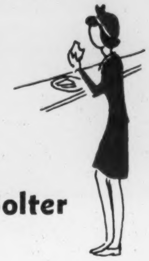
Help complexion by regular elimination

Use a deodorant

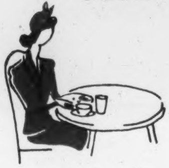
Daintiness is never rationed

Do You Choose Food Wisely?

YOUR JOB DEMANDS IT!



Chew well—enjoy yourself



Don't be a Bolter

Every day have—

Milk, Eggs

Vegetables, Potatoes

Fruits

Meat, Fish, or Poultry

Cereal, Bread

Butter, Fats

Water, Beverages

Do You Have Fun?

PLAY SPEEDS PRODUCTION!

There is Time

Don't waste it

At noon—walk outdoors

After hours—hike, bowl, swim,

bicycle, dance, picnic

Join in—arts, crafts, games,

music, reading, dramatics

Change blacks out jitters

Do You Look Up Facts?

KNOW WHAT HELPS!

There is an answer

Don't be in a Fog

"Lady Be Fit", Dorothy Nye, Harpers, New York, July 1942. Tentative price $1.75.

"Sitting Pretty", Janet Lane, John Wiley & Sons, Inc., New York, 1934. 25 cents.

"Social Games for Recreation", Bernard M. Mason and Elmer D. Mitchell, A. S. Barnes & Co., New York, 1935. $2.50.

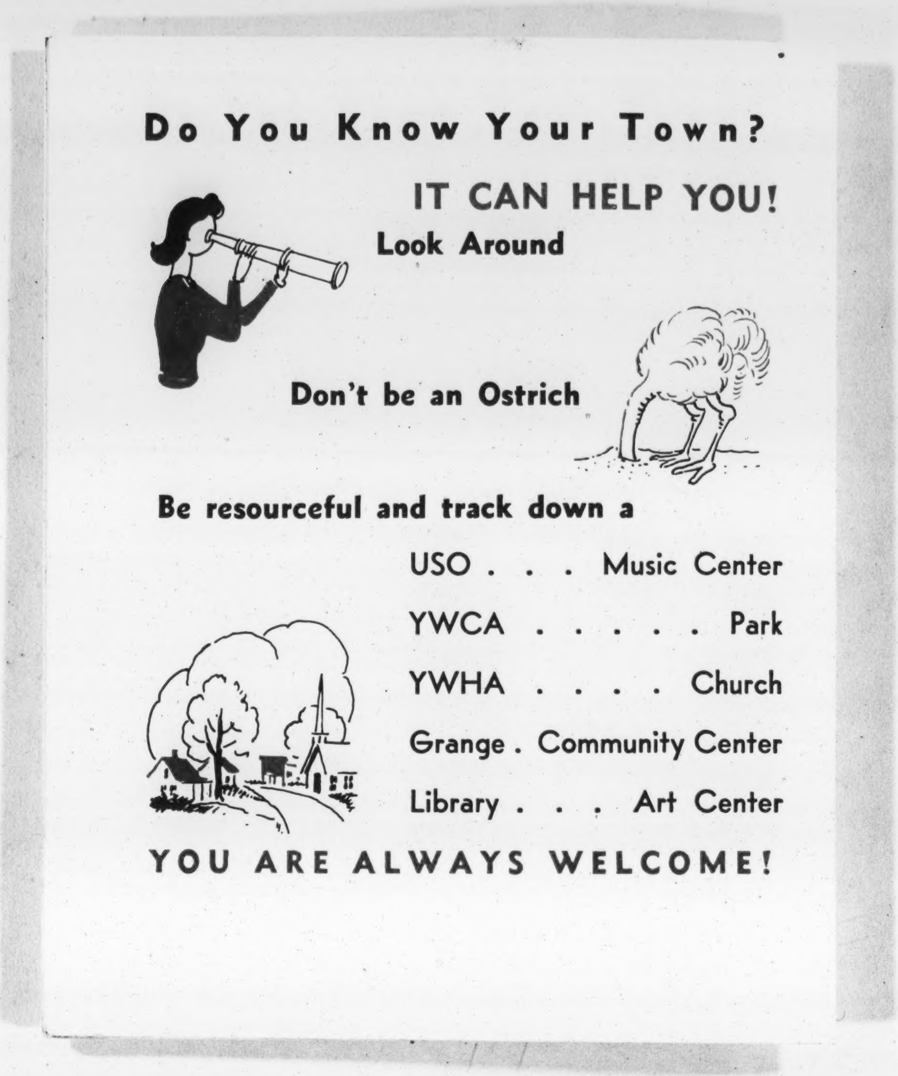
"Vitamins and Minerals for Everyone", Alida Frances Pattee and Hazel E. Munsell, George Putnam, New York. $2.00.

"Consumer Problems and Projects", Brooks Spivey Creedy and Rose Terlin, The Womans Press, New York, 35 cents.

"Team Sports for Women", Alice W. Frymir and Marjorie W. Hillas, A. S. Barnes & Co., New York. Revised Edition 1942. $2.50.

"The Big Fun Book", edited by Jerome S. Meyer, Greenberg, New York, 1940. $2.00.

Knowledge chases doubt



Do You Know Your Town?

IT CAN HELP YOU!

Look Around

Don't be an Ostrich

Be resourceful and track down a

USO . . . Music Center

YWCA . . . . . Park

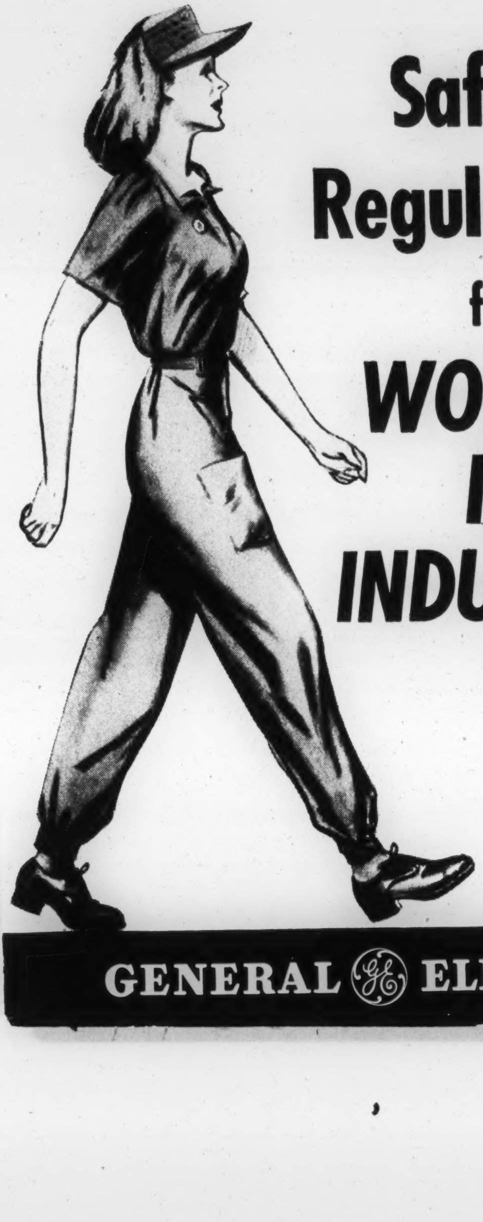
YWHA . . . . Church

Grange . Community Center

Library . . . Art Center

YOU ARE ALWAYS WELCOME!

GEQ-217



Safety Regulations for WOMEN IN INDUSTRY

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GENERAL ELECTRIC

Women are meeting the opportunity to serve their country, in the struggle to preserve their rights and privileges as mothers and homemakers, with courage, determination, and vigor. Women will stand guard against accidents and continue to serve their country.

★

SAFETY IS THE INSURANCE *that pays most, costs least, and is paid to YOU!*

●

THE PREMIUM YOU PAY *is unrelenting vigilance, constant caution, timely forethought, use of safety appliances and safety methods.*

★

Safety Regulations For Women in Industry

The purpose of this pamphlet is to help protect our women employees from the hazards of the shop and also to inform them of safe practices which are especially important.

Your personal caution is of great value. Armed with the knowledge of what to do and what not to do, you will be better prepared to take your place in industry.

Many accidents are caused by sending the mind out to play or dream while the body is at work. Therefore, the first requisite is to concentrate on your job, to do it properly and safely. If there is any question about how to do the job or how to prevent injury, consult your supervisor without delay.

Safety depends on

- how surely you recognize the hazards of your work,
- how faithfully you utilize the precautions for your safety,
- how consistently you exercise thoughtfulness and carefulness,
- how fully you recognize the fact that the safe way is the best way,
- how thoughtful you are of others as well as of yourself.

Statistics have proved that working in a factory is safer than being home or being on the highway. More accidents occur outside of the shop than inside. Our Company does everything possible to protect its employees, and we merely ask you to follow the practices which have been proven to be best by past experience.

Safe, Comfortable, Good-looking Clothing

Standard shop clothing has been accepted for use in our shops. When working on or around equipment with revolving parts, short sleeves should be used, and loose-fitting or flowing clothing of any sort should be avoided. Sweaters and clothes with long sleeves, or sleeves rolled above the elbow, causing a bunch, catch very easily in the machines, and therefore are not permitted.

Hair Protection

Women who work on or around rotating machines must have their hair protected by substantial, approved hair covering. All hair, front, side, and back, must be tucked within the protective head covering.

Safe Shoes

Women who enter the work areas in the shops must have completely closed substantial shoes, with heels not higher than Cuban, and strong soles. Safety shoes, which have a protective tip and which meet our requirements, are recommended.

Source of Clothing

Information and arrangements regarding the purchase of shop clothing, hair coverings, and safe shoes may be obtained from your supervisor or the Personnel Department.

Gloves and Jewelry

The use of gloves may be necessary on some operations, but they must never be worn by operators on lathes, boring mills, drill presses, milling machines, saws, or where revolving spindles or cutting tools are operating. Gloves are likely to catch on revolving tools and pull the hand into the danger zone, causing serious injury.

Rings, wristwatches, bracelets, pendants, or other jewelry should not be worn when doing work on the above types of machines.

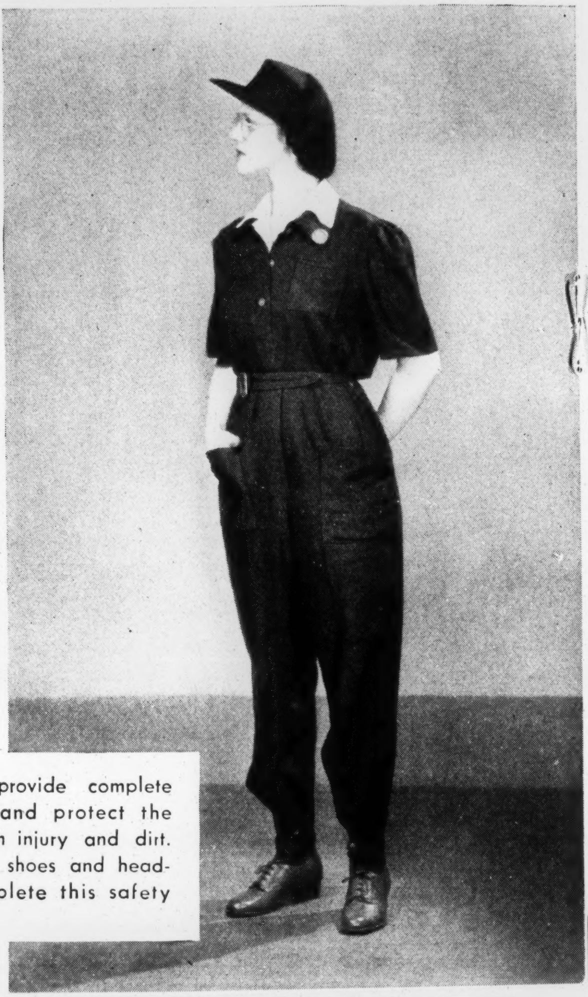
Goggles and Eye Shields

Many eyes have been saved by protecting them with goggles and eye shields which are furnished employees. Your supervisor will arrange to supply you with suitable protection, but you must do your part. See your supervisor about the correct way of protecting your eyes.

Face Shields

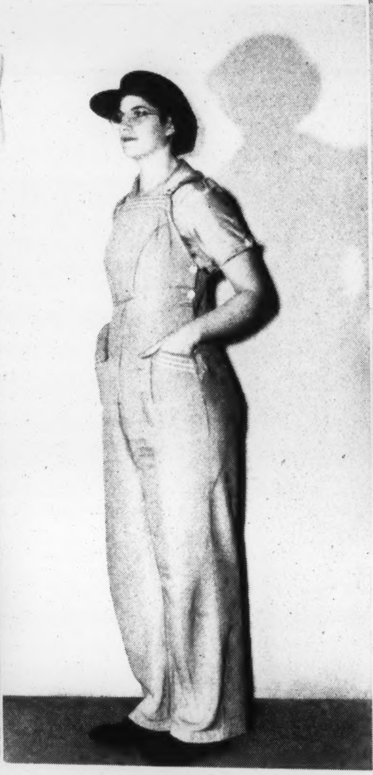
Face shields are of value only when there is no possibility of a severe blow, as in spot welding, pouring liquids, etc.

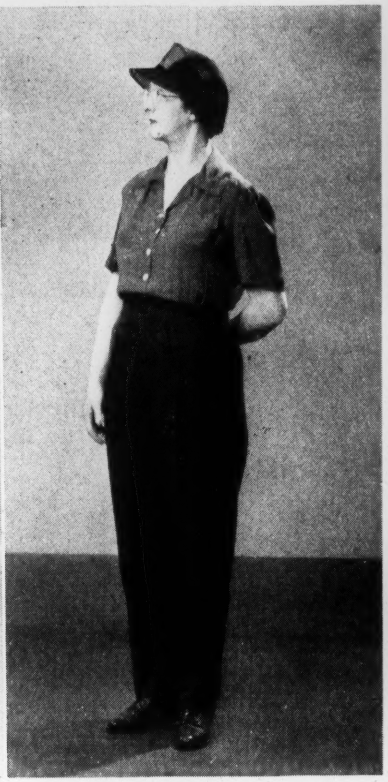
APPROVED SAFETY DRESS FOR WOMEN IN INDUSTRY



Coveralls provide complete covering and protect the wearer from injury and dirt. Regulation shoes and headgear complete this safety costume.

Denim bib-overalls also protect the wearer from dirt and moving machinery. With the overalls may be worn a short-sleeved blouse or shirt, regulation safety shoes and headgear.





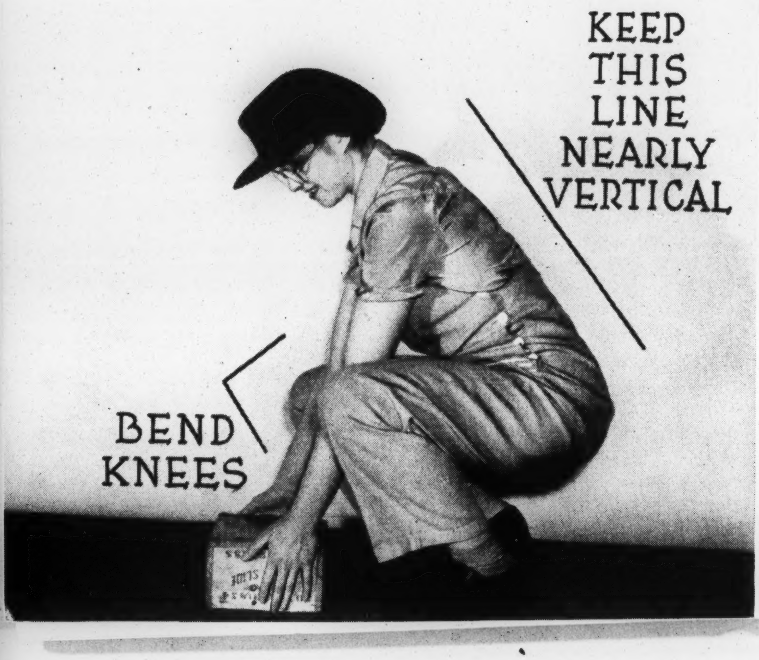
Lightweight slacks with a short-sleeved sport shirt or blouse and safety headgear are another example of approved safety costume.

Here Are Some Pointers—

1. Never reach through or over machines so that revolving or cutting parts may touch your clothes or body.

2. Keep your fingers away from the point of machine operations by using such approved devices as push sticks, hooks, or pliers. When removing chips, shavings, or other material from work, use brush, hooks, or special tools.

3. Learn to lift loads the right way—knees bent, back straight. Use the leg, not the back muscles.


KEEP THIS LINE NEARLY VERTICAL
BEND KNEES

4. Do not force drill presses, reamers, or other machines by exerting too much pressure on the feed lever. If this is done, tools may snap or break, and you may be injured.

5. When drilling, tapping, burring, or reaming material, see that it is securely fastened by blocks or clamps, so that it cannot spin or climb the drill. In no case should an operator rely on her hands to prevent the material from turning.

6. Be sure that hand tools are used in such a way that, should they slip, they will not injure you.

7. All files with tangs must be provided with handles when in use. Files must never be used as chisels, punches, or drifts.

8. Apply a wrench in the right way, so that the jaws do not spread. Use the right size to fit the nut so that it will not slip. Do not use a wrench as a hammer. Stand to one side when pulling down on wrenches above your head.

9. Compressed air is hazardous if improperly used. Consult your supervisor on how to use it.

10. You must not remove or make ineffective any safeguard.

11. When on a ladder, do not overreach.

12. All steps and stairs are dangerous unless properly used. Never run up or down stairs. WATCH your step.

13. If there is any question regarding your machine or tools, consult your supervisor immediately.

14. Every employee should take pride in his or her work place, machine, or bench. Clean, orderly, and sanitary work places are conducive to safety and pleasant in which to work.

15. Your personal help in keeping drinking fountains, toilets, and wash rooms clean and sanitary is vital to the safety and health of all employees. Observe rules of decency.

16. Lunches should neither be kept nor eaten in the immediate vicinity of such processes as plating, acid and alkali dipping, sand blasting, buffing, lacquering, lead operations, painting, galvanizing, alloy casting, or others where injurious materials or gases are present.

17. If you are injured in any way, no matter how slightly, go at once to the dispensary. Remember that unattended minor injuries may result in infection and time lost at work.

The above regulations and suggestions on safety are for *your* welfare and safety.

For more complete information, read your Red Book of "Safety Instructions and Information," GEQ-60A. If you haven't one, ask your foreman. He has a free copy for you.

Other pamphlets have been issued covering specific operations. Ask your foreman if there is one pertaining to your job.

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If you don't know the safe way—stop and find out. It's a lot easier to do things right than wrong, and a lot safer.

★

★ TALK

★ WALK

★ LIVE

SAFELY

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UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary
WOMEN'S BUREAU
MARY ANDERSON, Director

✦

Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs

Special Bulletin No. 7 of the Women's Bureau

United States
Government Printing Office
Washington : 1942

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - - - Price 5 cents

HAZARDS TO WOMEN EMPLOYED IN WAR PLANTS ON ABRASIVE-WHEEL JOBS

I. Recommendations for the employment of women.
II. Brief description of operations.
III. Hazards and preventive methods.
  Dust hazards.
  Dust prevention.
  Oil dermatitis.
  Repetitive motion.
  Accident hazards.
IV. Sources of information.

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I. Recommendations for the Employment of Women

If intelligent precautions are taken, grinding and polishing operations can be done safely. Protective methods are well developed and the problem becomes one of seeing that these are used. There need be no escape of dust into the workroom. Protective measures can greatly reduce the danger of dermatitis and of accident. There is no reason why women as well as men should not work on wheels properly installed, maintained, and inspected. The American Standards Association has published an acceptable safety code for the protection of workers in these operations. Several States have excellent codes for dust collection and safe operation of abrasive wheels.

Because women have special health and injury problems, the Women's Bureau urges that employers be required to show that they maintain healthful conditions of employment before they hire women. The following paragraphs summarize briefly the effects on the health of women as compared to men of employment in grinding, polishing, and buffing.

(1) Inhalation of dust from abrasive wheels is very serious for either men or women. Some industrial hygienists believe that the excessive tuberculosis rate among women 15 to 24 years of age indicates a special need for protection from dust[1] (1).

(2) Some authorities believe women are more likely than men to be affected by dermatitis on grinding where oil solutions are used.

(3) Long and loose hair as worn by women workers is a definite accident hazard.

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[1] References are to sources of information, last page.

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(4) Other dangers, from cuts, abrasions, flying particles, broken wheels, and repetitive motion, are no more serious for women than for men. It should be kept in mind, however, that with any injury women have special problems. Their compensation is less than that paid for injury of similar severity to a man, because the wages of women are lower. Injury to the wage earner is a very serious matter to the household but it is even more serious when the wage earner is also homemaker.

II. Brief Description of Operations

Grinding, polishing, and buffing operations are similar in type. When a small amount of metal must be removed from an article to bring it to correct measurement, it usually is ground; when a smooth surface or special finish is desired, it is polished and perhaps buffed. Metal grinding usually is performed with emery wheels. Sometimes grinding is done by belts covered with emery or other exceedingly hard abrasive substance. Carborundum and corundum chiefly are used.

Grinding is accomplished by the revolution of the abrasive wheel against the object from which metal is to be ground. Danger to the worker from the metallic dust thrown off can be prevented by wet grinding, in which the cutting is done under a stream of water or oil to prevent overheating and to lessen the dust. However, the wet process cannot be used for all types of grinding. Where dry grinding is done, standards for dust exhaust systems as provided for in various State codes, such as that of Illinois (cited on p. 4), are satisfactory.

Polishing is done on emery wheels or on spindles covered with a composition of abrasive material, to give a smooth surface to castings. Buffing is a follow-up process to gloss the metal parts still further after they have been polished. Buffing usually is done with wheels of tightly compressed fabrics, sometimes infiltrated with fine abrasive powders.

III. Hazards and Preventive Methods

Dust Hazards.

In both grinding and polishing, dust is a chief health problem. The metallic dusts are very harmful, since they are extremely hard, crystalline, and very fine, and may be poisonous.

A Women's Bureau study as long ago as 1926 found that though dust was considerable in some plants where women were employed, in other plants effective exhaust systems and good cleaning methods kept the dust out of the atmosphere.

Investigation by the Women's Bureau of occupations suitable for women in the war production of 1941 and 1942 revealed that in metal plants with good dust-collection methods and adequate protection from injury the occupations of grinding, polishing, and buffing may be classed among the most desirable jobs for women.

In 1911 the Ohio Division of Occupational Diseases, under the direction of Dr. Emery R. Hayhurst, made a study of health hazards in Ohio. In metal grinding and in polishing and buffing operations an excessive tuberculosis death rate was found. The following conclusions were reached (2):

> Liability to industrial *poisoning* existed in 38 of the plants visited, and especially so in 21. This was due in about half of the instances to the presence of other processes; in the balance it was due to working upon poisonous metals and alloys, particularly those composed of lead, or rich in lead component. The various poisons mentioned to which polishers and buffers were found subjected were lead, potassium cyanid, nitric acid fumes, phenol, amyl acetate, benzine, alum, crude paraffin, and "metal dust," furnace gas fumes, brass fumes, plating fumes, and acid-dipping fumes.
>
> . . . .
>
> One point which particularly impressed our investigators was that where blower systems were installed they were often very inefficient at the time of inspection and were said to be so most of the time. There appears to be but one way of getting around this—to make it somebody's business in each such room to see that such systems are in working order and to provide for compensation for this purpose. A metal or wooden "chest-protector" prevents harmful pressure against the person. Especially should medical supervision be adopted for this class of workers, as they are at a process which appears to take about 20 or 25 years off their lives. (See also page 5, Repetitive Motion.)

In spite of the serious hazards in the industry, Dr. Hayhurst found at that early date that some plants were adequately guarding their employees.

Dust Prevention.

In all dry grinding, polishing, and buffing operations local exhaust ventilation is a necessity. Specifications for dust exhaust systems have been put in force in several States. In the Illinois rules relating to this problem, the following exhaust-system designs are required (3):

> All branch pipes shall enter the header pipe at an angle of 45° or less. All bends, turns or elbows used in exhaust pipes shall be made with a throat radius of two pipe diameters except greater or smaller throat radii may be used to clear obstructions.
>
> All branch pipes shall connect with a header pipe. The area of the header pipe at any point shall not be less than the combined areas of the branch pipes joining it between such point and the small end of the header. Such header pipes shall be connected to an exhaust fan to produce a minimum air velocity in the branch pipes of 4,500 feet per minute or such greater air velocity reasonably required to remove dusts, vapors, gases or fumes generated if same constitute a hazard to the health of employees. Where cradles are used for handling the parts to be ground, polished or buffed, or where swing grinders are used, and large partial enclosures to house the complete operation are required, the opening in such enclosures shall have a minimum average air velocity of 100 feet per minute and shall be connected to branch pipes of an exhaust system of such area as to produce a minimum air velocity of 2,000 feet per minute in the branch pipes.

Hoods must be so connected with exhaust systems that all dust will be drawn into them and none will reach the operator's breathing zone.

The size of suction pipes necessarily varies with the diameter of the grinding wheel. Excepting swing-frame and portable grinding machines, the American Standards code for safe operation of abrasive wheels requires these dimensions (4):

Diameter of wheel	*Minimum diameter of branch pipe (inches)*
6 inches or less	3
7 to 16 inches	4
17 to 24 inches	5
25 to 30 inches	6

Some modification of these dimensions is allowable in the case of narrow wheels used for light work where little dust is generated and a smaller pipe will remove it.

Testing of exhaust systems to check on the effective removal of dust is quite as important as correct installation. The Illinois regulations require tests using a Pitot tube (3):

> A Pitot tube shall be used to measure the velocity pressure of the air flow in the branch pipes and such measurements must be taken in the

center of a straight portion of the branch pipe near the hood at a point that is 10 pipe diameters away from an elbow or bend or as near this location as the branch pipe installation will permit and the velocity pressure shall not be less than 1.53 inches of water for 4,500 foot velocity per minute and 0.31 inches of water for 2,000 foot velocity per minute as indicated in a U-shaped tube.

All tests for air velocity shall be made with all branch pipes and hoods of the exhaust system fully open at the same time.

Oil Dermatitis.

Oil used in wet grinding may cause dermatitis, particularly of the hands, arms, and thighs. Some authorities say that women are especially susceptible to such infection because their skin is tender. The dermatitis is an acne-form eruption of the exposed skin, or a folliculitis involving the hair follicles, or eczematoid dermatitis. In the first two it is caused by mechanical plugging up of the pores, followed by infection. Bits of metal in the oil may wound the skin and become infected. The Women's Bureau is studying dermatitis among women.

The United States Public Health Service advises protective ointments, such as lanolin and castor oil, rubbed into the skin before work. This prevents contact of the oil with the skin, and workers wash off the ointment before leaving work, thus removing the irritant too. Clean work clothes, clean wiping cloths, and good washing facilities are important. (5) Dermatitis of the thighs is easily prevented by wearing impervious clothing that prevents the oil reaching the undergarments.

Repetitive Motion.

Faulty posture and constant pressure of the body against objects present health problems. Abrasive-wheel operation may be light and not fatiguing, but in many cases it is necessary to press the part to be ground heavily against the wheel or to use a special motion to turn the piece. In the Women's Bureau study in 1926, several women complained of fatigue of their wrists caused by constant repetition of a special motion required to bring the surface against the polishing wheel. One girl had her arm bandaged to relieve the swollen wrist.

Variation of occupation, provision of good-posture seats, and efficient motions in handling work help to prevent fatigue from repeated motion. Rest periods should be provided.

Accident Hazards.

On some operations there is danger of getting the hands cut or scraped on the wheel. In buffing or polishing small pieces it is difficult to protect the nails and finger tips. Finger guards should be used in such work.

More serious, though less frequent, is the possibility of loose hair catching on wheels operating at high speed. Suitable headwear, covering all the hair but standing up from the head so that machinery cannot catch in the cap and then in the hair, should be provided and its wearing enforced.

In the operation of grinding wheels at high speed there is the possibility of the wheel breaking and of pieces flying out, with injury to the worker. The best protection is a hood for the wheel, of good design and construction. Other important preventive methods include careful storage and correct mounting. The technical factors involved in such protection are covered in detail in the safety code for abrasive wheels approved by the American Standards Association. See (4).

Goggles are considered the best eye protection and should be provided for all employees on grinding wheels unless the danger of flying particles of metal is effectually removed.

IV. Sources of Information

(1) United States Department of Labor. Women's Bureau Bul. 114. State Reporting of Occupational Disease. 1934. p. 14.

(2) Hayhurst, E. R. Industrial Health Hazards and Occupational Disease in Ohio. Issued by Ohio State Board of Health. February 1915. p. 144.

(3) Illinois Department of Labor. Industrial Commission. Rules Relating to Removal of Dusts, Vapors, Fumes, or Gases from Grinding, Polishing, and Buffing Operations . . . effective July 15, 1938. pp. 11, 14.

(4) American Engineering Standards. Safety Code for the Use, Care, and Protection of Abrasive Wheels. Approved by the American Standards Association. New York. 1935. p. 20.

(5) Federal Security Agency. United States Public Health Service. Public Health Bul. 249. Louis Schwartz. Skin Hazards in American Industry, pt. III, 1939. p. 51.

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The Answer To

INDUSTRIAL DERMATITIS

EIGHTH EDITION AUGUST, 1942

Foreword

THIS newest edition of "The Answer to Industrial Dermatitis" is based on a complete re-examination of the problem in the light of the new operations and chemicals involved in plant conversions for all-out defense production.

Revisions in manufacturing processes have multiplied the hazards in countless instances. For example, sulphur and chlorine have been added to cutting oils to preserve the efficiency of cutting tools. The primary purpose has been realized, but the high toxicity of the oil has caused a sharp increase in skin disorders that eventually lead to lost man-hours of work. Similar problems in ammunition-loading operations and hundreds of others have made the effective control of skin disorders a vital factor in maintaining production schedules.

In the following pages we present a detailed account of the hazards and the protection our Research Staff has developed. Included in this edition are several new materials which were only in the experimental stages in previous editions.

We take this opportunity again to pledge our resources to a continuous search for—and solution to—problems arising from exposure to occupational hazards related to skin disorders.

PRESIDENT
THE MILBURN COMPANY

NOTE: Nothing in this book should be construed as a recommendation for self-medication or any practice contrary to the principles of the medical profession.

See inside back cover for location of nearest distributor

The ANSWER to INDUSTRIAL DERMATITIS

* * *

Prepared by

THE MILBURN COMPANY

DETROIT, MICHIGAN, U. S. A.

EIGHTH EDITION

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PREVALENCE OF SKIN DISORDERS IN INDUSTRY

In earlier editions of this book we have quoted figures which conclusively demonstrate the high percentage of skin disorders in relation to the total number of industrial diseases and accidents. It was found that industrial dermatoses accounted for nearly 70% of all industrial diseases.

This figure becomes even more impressive when one examines the latest report of the United States Public Health Service which states that five out of every hundred men employed in industry are victims of disabling dermatitis. Considering the millions of men employed—and the vital necessity of keeping these men on the job—the importance of the dermatitis problem cannot be overemphasized.

In addition to lost production hours, dermatitis is an expensive hazard to both labor and management. The annual dollar loss is estimated at nearly $7,000,000.

Social legislation in recent years has made occupational skin diseases compensable. This action demonstrates that recognition is being given to the scope and importance of the problem. While this is the first step toward its solution, there are many intervening steps which are evolving quicker, simpler and more economical safeguards in the form of tested and proven preventatives. It is to this phase of the problem that we direct our efforts and your attention.

Before any basis for prevention can be offered, it is first necessary to define the hazard or combination of hazards to which the worker is exposed. On the following pages we offer an outline for determining the first step in your preventive program.

CLASSIFICATION OF CAUSES

In common with all diseases, industrial dermatoses has certain predisposing personal and environmental factors. Sex, age, race, diet and climate must be considered in addition to cleanliness and allergies. Chemical, biological and mechanical hazards are also vital elements basic to the problem.

Unclean workrooms and work clothes, personal cleanliness of the individual, and previous skin diseases are obvious factors that can rapidly and simply be corrected. However, when hazards are an integral part of a process or material, they are not as immediately apparent. To provide an over-all picture, we present a break-down of dermatoses causes complied by the United States government:

PREDISPOSING FACTORS

Allergic Diathesis

Previous Skin Diseases

Uncleanliness

MECHANICAL and PHYSICAL FACTORS

Electricity
Excessive Cold
Excessive Heat
Trauma
Ultra Violet Rays
X-Ray Radium

CHEMICAL FACTORS

GENERAL IRRITANTS:

Acids and Salts
Anhydrides
Alkalis
Salts of Irritant Metals
Solvents

SPECIFIC IRRITANTS:

Fabric Dyes
Fur Dyes
Leather Dyes
Mineral Oils
Photo Developers
Rubber Compounds and Impurities
Rosin
Soaps
Synthetic Resins and Waxes
Vegetable Oils

PLANTS

BIOLOGICAL AGENTS:

Bacteria
Fungi
Parasites

CLINICAL TYPES:

Acute Eczematoid Dermatitis
Benign and Malignant
Chronic Fissured Eczemas
Epidermal Proliferation,
Folliculitis and Acne

SPECIFIC SKIN IRRITANTS BY OCCUPATIONS

Compiled from the United States Department of Labor, Bulletin No. 41

Occupation exposed	Skin Irritants
Acetylene makers	Calcium carbide.
Acid workers	Acids.
Alkali-salt makers	Caustic alkali.
Artificial-flower makers	Caustic alkali, dyes, solvents.
Auto washers and cleaners	Solvents, potassium cyanide.
Bakers	Dough, potassium persulphate, heat, dust.
Barbers	Soap, hair tonics, dyes.
Battery (dry) makers	Acids, zinc chloride, ammonium salts, charcoal.
Beatermen (paper and pulp)	Caustic alkali, dyes.
Bleachers (cloth)	Acids, bleaching powder, caustic alkali, hydrogen peroxide, sodium silicate.
Blooders (tannery)	Dyes.
Bricklayers	Lime.
Bronzers	Dyes.
Broom and brush makers	Dyes, vegetable dust, tar, bacteria, fungi, parasites.
Calico printers	Dyes.
Candy makers	Sugar, tartaric acid.
Canners	Fruit acids, lacquer, fungi, parasites, dyes, bacteria.
Cap loaders	Mercury compounds.
Carbide makers	Calcium carbide.
Carbolic-acid makers	Caustic alkali, phenol.
Cardboard stickers	Sodium silicate.
Carroters (felt hats)	Acids, mercury compounds.
Cartridge dippers	Acids, soap.
Cementers (rubber shoes)	Benzine, coal-tar products, naphtha, methyl alcohol.
Cement workers	Lime, pitch, rosin.
Chemical workers	See Specific chemical in section II J.
Chromium platers	Chromium compounds, sulphuric acid.
Cloth preparers	Acids, caustic alkali, lime, soap, potassium salts, sodium salts, sodium silicate.
Confectioners	Sugar.
Cooks	Fruit acids, glucose.
Cotton sizers	Acids, zinc chloride, arsenic salts, phenol, aluminum salts, calcium salts, magnesium salts.
Curriers (tannery)	Paraffin, benzine.
Degreasers	Solvents.
Dentists	Procain, mercury, cocaine.
Detonator cleaners	Mercury compounds.
Detonator fillers	Mercury compounds.
Detonator packers	Mercury compounds.
Dishwashers	Caustic soaps, grease, bacteria, fungi.
Disinfectant makers	Formaldehyde, cresol.
Druggists	Bleaching powder, soap, iodoform, sodium salts, sugar.
Dry cleaners	Dirt, benzine, carbon tetrachloride.
Dye makers	Acids, benzine, caustic alkali, coal-tar products, dye intermediates, dyes, turpentine, antimony compounds, barium salts, calcium salts, cresol, dextrines, ferro-cyanides, formaldehyde, gums, hydro-quinone, lead salts, phenol, potassium chlorate.
Dyers	Dyes.
Electroplaters	Acids, benzine, caustic alkali, lime, potassium cyanide, soap, nickel, sulphate, chromic acid.
Embalmers	Formaldehyde, mercury.
Enamelers	Alkalis, acids, arsenic, chromium.
Engravers	Acids, caustic alkali, ferric chloride, potassium cyanide.
Etchers	Acids, caustic alkali.
Explosives workers	Dye intermediates, explosives (TNT, etc.), ammonium salts, bromine, mercury compounds.
Farmers	Ivy and other plants, fertilizers, insecticides, bacteria, fungi parasites.
Felt-hat makers	Acids, mercuric nitrate, dyes.
Fertilizer makers	Calcium cyanamide, fluorides.
Fish dressers	Brine.
Flax spinners	Lime, brine.
Flour-mill workers	Dust, fungi, parasites.
Furnacemen	Heat.
Furniture polishers	Benzine, caustic alkali, naptha, turpentine, methyl alcohol, pyridine, rosin.
Fur workers	Dyes, lime, formaldehyde.
Galvanizers	Ammonium chloride.
Garage workers	Oils, grease, solvents.
Gardeners	Ivy and other plants, fertilizers, insecticides.
Gas-mantle impregnators	Thorium compounds.
Glass blowers	Charcoal, pitch, rosin.
Glass mixers	Caustic alkali.

See inside back cover for location of nearest distributor

SPECIFIC SKIN IRRITANTS BY OCCUPATIONS—(Continued)

Occupation exposed	Skin Irritants
Hair dressers	Cosmetics, dyes, tonics, perfumes, bacteria, fungi.
Ink makers	Dyes, turpentine, chromates.
Insecticide makers	Arsenic.
Lampblack makers	Soot.
Laundry workers	Caustic alkali, soap, bleaching powder.
Lime burners	Lime.
Lime pullers (tannery)	Lime.
Linoleum makers	Dyes.
Machinists	Cutting compounds, lubricants, oils.
Masons	Lime.
Match-factory workers	Dyes, dextrins, gums, chrome salts.
Mercerizers	Acids, caustic alkali.
Mixers (rubber)	Accelerators (hexamethylenetetramine)
Mordanters	Acids, caustic alkali, chromates, zinc chloride, aluminum salts, antimony compounds, arsenates, copper salts, iron salts, lead salts, phosphates, silicates, tin salts.
Mottlers (leather)	Dyes.
Nickelplaters	Zinc chloride, nickel sulphate.
Nitroglycerin makers	Acids, explosives.
Painters	Acids, caustic alkali, paints, zinc chloride, benzine, chrome pigments.
Paint makers	Paints.
Paper-box makers	Glue, dyes.
Paraffin workers	Paraffin.
Parchment makers	Zinc chlorides.
Pencil (colored) makers	Dyes.
Petroleum refiners	Caustic alkali, paraffin.
Photographers	Acids, caustic alkali, chromates, metol, pyrogallic acid, turpentine, amidol, bronzing powder, hydroquinone, rodinal.
Photographic-plate cleaners	Caustic alkali.
Pitch workers	Pitch, tar.
Plasterers	Lime.
Plumbers	Caustic soaps, hydrochloric acid, zinc chloride.
Polishers	Caustic alkali, naphtha, acid, cyanogen compounds.
Polishers (silver and brass)	Potassium cyanide.
Printers	Ink, benzine, chromates, alkalis.
Pyroxylin-plastics makers	Dyes.
Radium workers	Radiant energy.
Rayon workers	Alkalis, carbon disulphide, acids, solvents, bleaches.
Rock-salt workers	Brine.
Ropemakers	Oil, tar, dyes, potassium hydroxide.
Rubber workers	Accelerators (hexamethylenetetramine), solvents.
Salt preparers	Brine.
Shell fillers	Explosives (TNT, etc.).
Shoe finishers	Benzine, coal-tar products, naphtha, methyl alcohol.
Silk workers	Alkalis, acids, dyes.
Sizers (cotton)	Zinc chloride, aluminum salts, calcium salts, magnesium salts, acids, phenol, arsenic salts.
Slaughter and packing-house workers	Bacteria, fungi, parasites, brine.
Smelters	Arsenic.
Soap makers	Caustic alkali, soap, vegetable oils, sodium silicate.
Sodium-hydroxide makers	Caustic alkali.
Solderers	Acids, zinc chloride.
Stockyard workers	Bacteria, fungi, parasites.
Sugar refiners	Sugar.
Tannery workers	Acids, lime, sodium sulphide, arsenic salts, brine, calcium hydrosulphide, chromium salts.
Tar workers	Tar, pitch.
Taxidermists	Arsenic, mercuric chloride, calcined alum, tannin.
Temperers	Oil, brine, cyanide.
Tinners	Zinc chloride.
Tobacco rollers	Vegetable dust, vegetable oils, glue.
Typists	Carbon paper, typewriter ribbons.
Upholsterers	Lacquer, glue, bacteria, fungi, parasites.
Veterinarians	Bacteria, fungi, parasites.
Vulcanizers	Accelerators (hexamethylenetetramine).
Washers	Caustic alkali, soap, bleaching powder.
Washwomen	Caustic alkali, soap, bleaching powder.
Watchmakers	Potassium cyanide, trichlorethylene.
Waterproofers (paper)	Paraffin.
Wax-ornament makers	Dye intermediates, potassium cyanide.
Wood preservers	Tar, zinc chloride, bichloride of mercury.
X-ray workers	Radiant energy.
Zinc-chloride makers	Acids, zinc chloride.

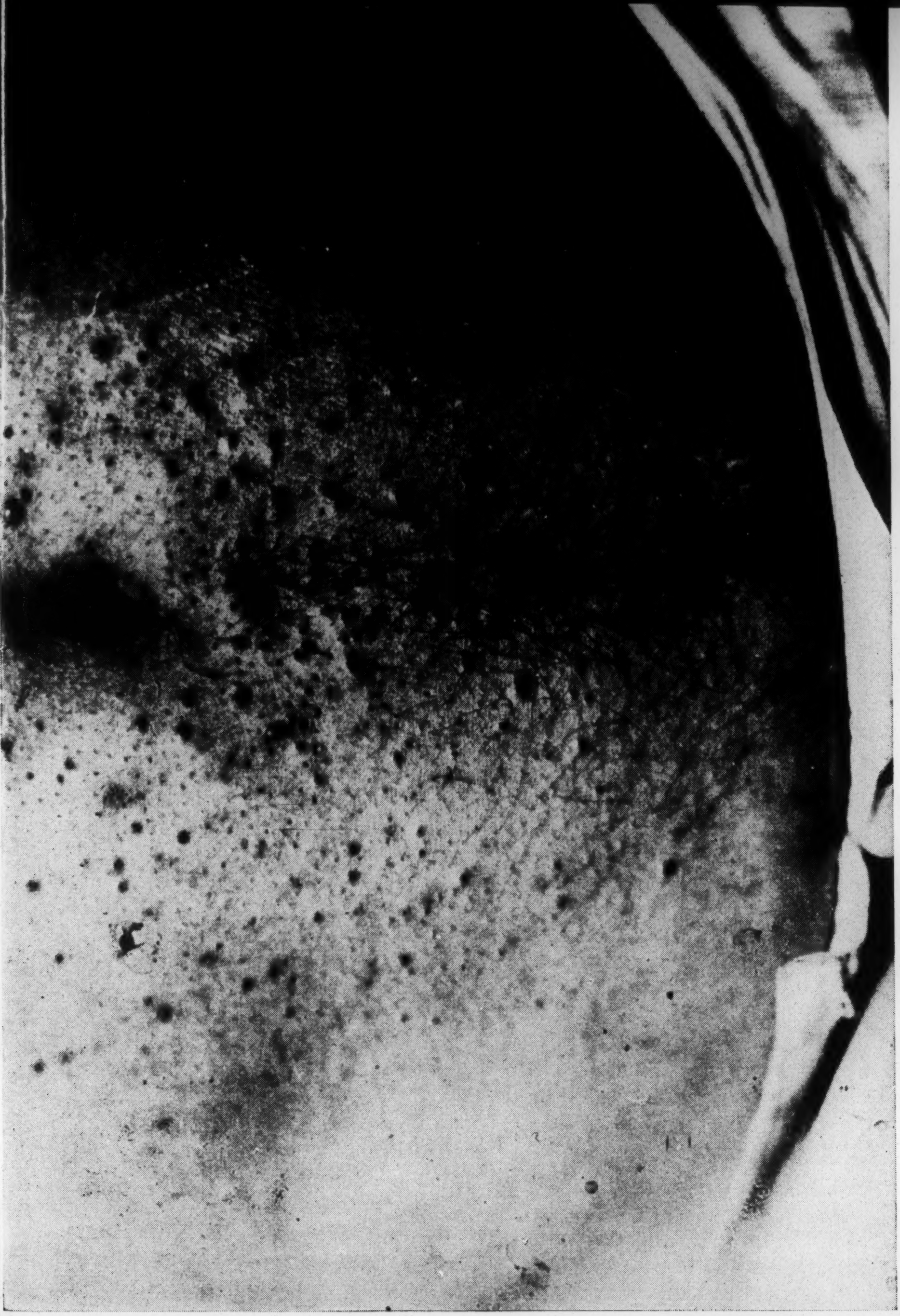


Photo courtesy
United States Public Health Service.

Acne due to fumes of Trichlornapthalene. This substance also causes Acute Yellow Atrophy of the Liver.

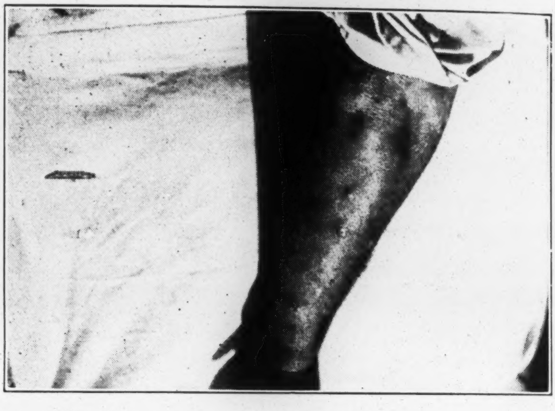
FACTORS IN PREVENTION

The medical profession, for the most part, has concerned itself with curative rather than preventative measures. The United States government report summarizes the situation in terms of the following prescription: Generally clean working conditions, removal or transfer of workers, and the use of protective ointments, namely a specific ointment for the specific irritating element.

Industrial hygienists have evolved three partially successful techniques which are ramifications of this simple statement. 1. The transfer of men who demonstrate a hypersensitivity from one situation to a more favorable one. 2. The careful examination of chemicals involved in the process. In many cases non-toxic chemicals are substituted for toxic ones, thus minimizing the danger. 3. Mechanical changes are introduced to eliminate or minimize contact with specific hazards. Ventilation and enclosed processes are in this category.

These techniques, unfortunately, barely scratch the surface on this increasingly serious problem. In many cases the means would not justify the end. We would, for example, have to remove the oil that makes the machine function most efficiently . . . the chromium that gives an attractive, enduring finish . . . the dye which provides a bright, fast color . . . the hundreds of innovations that contribute so much to the enjoyment of the many. The problem therefore reverts to the prevention and protection, without sacrificing the industrial progress that has been made.

Photo courtesy
United States Public Health Service.



Wax Boils on a Paraffin Pressman, Oil Refinery Worker

The most productive field in prevention is in the use of mechano-chemical protective liquids and creams. Manufacturers of such materials must have a definite knowledge as to whether any ingredients in their product may serve as a vehicle to carry toxic chemicals deeper and thus aggravate a normal hazard condition. While this principle has been overlooked by many manufacturers, it is of tremendous importance in discovering and eliminating causes of dermatitis in cutting oils, compounds and rust-preventive materials. Much work in this field remains to be done, but evidence to date is ample assurance that the mechano-chemical technique is the best available.

PRINCIPLES OF PROTECTION

The combined experience of the biological chemist, the dermatologist and the manufacturing chemist is basic in the production of PLY protective products. First the discovery of the specific irritant in any given situation must be accomplished. The characteristics are studied and experiments are performed to evolve a cream or liquid which provides positive defense with complete safety. Fundamentally, protection may be organized under three basic classifications:

1. Paint, Lacquers, Varnishes, Greases, Enamels, etc., and other excessively staining or adhesive materials. (For more detailed list see paragraph under PLY No. 1.)
2. Oils, mineral, animal or vegetable, cutting and drawing compounds not containing more than 10% water. (See PLY No. 2) Petroleum distillates or solvents as well as Hydrocarbon Solvents and their derivatives. (See Liquid Ply.)
3. Acids, Alkalies, either solids or aqueous solutions. (See PLY No. 3 and PLY No. 6 and No. 6A.)

The other types of PLY described in the following pages should be specified only upon recommendation from our home office, following proper analysis of the problem involved.

After a check with the above classification, the problem of specifying the exact type of protection for the particular hazard is a simple matter.

PLY CONTAINS NO IRRITANTS

Ply contains no irritating material whatsoever, and is manufactured with a background of scientific experiment so thorough that even with constant daily use, no ill effects develop. It acts as a complete protection from the chemicals listed above. When paints, enamels and varnishes are contacted, the protective film prevents these chemicals from adhering to the network of pores and hair follicles of the skin. Persistent use of Ply No. 1 makes paints and varnishes easily removable with ordinary water, either hot or cold. It eliminates the use of harmful solvents, such as turpentine and gasoline.

This protective cream, when examined under a strong microscope, after application, resembles a very smooth cellophane-like film over the entire area to which it is applied. And it is soluble only in water. Ply No. 1 is available in both liquid and cream.

The following types of PLY are specific protection against the chemicals listed in each classification. In a large percentage of cases, various combinations of chemicals may appear to conflict. It should be remembered that many hazards consist of a combination of irritating substances. In such cases we suggest that you communicate with our Research Department for specific recommendations.

PLY No. 1

(Water Soluble)

For use in industrial processes where excessively staining and adhesive compounds are used, such as:

Asphalt
Bronzing Tin
Carbon Black
Carbon Paper
Enamel
Greases
Lacquers
Non-Aqueous Dyes
Oxides of Lead
Paints
Pitch
Printing Inks
Shellac
Silicate of Soda
Tar
Thinners
Varnishes
Waxes

Ply No. 1 is a vanishing-type protective cream that rubs into the skin, completely dry. The average amount necessary for one application, over the hands and wrists, need be no larger than a quantity equivalent to a large marble. There are almost 100 of such applications in a 12 ounce can, which costs 25 cents. Assuming two applications are necessary daily, a 12 ounce can should last two months. This is an approximate cost of only ½ cent per day.

Unretouched photograph showing condition of garage mechanic's hands, due to friction of handling tools and constant irritation of oils and grease. If this condition were allowed to remain unchecked, partial disability might result.

Unretouched photograph showing improvement in garage mechanic's hands after application of PLY for a period of just two weeks. Complete elimination of condition resulted after further use. The value of PLY is not in the therapeutic effects, but in the protection it affords.

PLY No. 2 (Cream or Liquid)
(Water Soluble)

Specifically designed for the prevention of skin irritations from mineral, animal and vegetable oils, as well as petroleum distillates and hydro-carbon (carbon tetrachloride, trichlor-ethylene, etc.) solvents and cutting oils and compounds that do not contain more than 10%* water. It is applied in the same manner as Ply No. 1 for it is also a vanishing-type cream, but its resistance to solvents and oils is much greater than Ply No. 1. It contains a specific ingredient to counter-act the development of germs and bacteria in cutting oils and compounds.

It is harmless so far as being, itself, a potential irritant, and like Ply No. 1, is soluble in water, facilitating the maintenance of a hygienic condition of the skin with the least amount of effort.

The following is a partial list of solvents for which Ply No. 2 is specified:

- Alcohols
- Amyl Acetate
- Butyl Acetate
- Carbon Bisulphide
- Carbon Tetrachloride
- Cooling Lubricants
- Cosmetics
- Cutting Compounds
- Gasoline
- Kerosene
- Mineral Oils
- Naphtha

---

*When using cutting compounds, containing more than 10% water, then Ply No. 6, the waterproof type of ointment, may be used.

Rosins
Synthetic Resins
Tetrachlorethane
Trichlorethylene
Vegetable Oils
Wax

Dermatitis due to action of Dinitrochlorbenzol on Synthetic Dye Worker.

Ply No. 2 is applied over the exposed parts of the skin and rubbed in until thoroughly dry. No other soaps are needed to wash at the end of the working period. Only water is necessary to remove the protection. In doing so, a good lather is developed, cleansing the pores and hair follicles of the accumulated dirt. Only in the case of strong universal solvents is it necessary to use a second application, just before washing, to attain this excellent cleansing job.

Dermatitis on Press Cleaner due to Napthalene Intermediates in Dye Manufacture.

Photo courtesy
United States Public Health Service.

PLY No. 3

(Water Proof)

This type is designed for use where the water content of cutting compounds, cooling lubricants, mild caustic and acid solutions, exceeds ten percent.

Ammonium Nitrate
Aniline Dyes
Chromic Acid
Depilatory Chemicals (mild)
Formaldehyde
Liquid Silicates
Mild Caustic Metal Cleaners
Muriatic Acid (mild)
Sulphuric Acid (mild)
Wet Lime

It is applied by rubbing in over the exposed parts of the skin, leaving a slight oily film. It requires soap and warm water for its removal at the end of the working period.

PLY No. 4

(Water Soluble)

Ply No. 4 is for similar hazards as Ply No. 1, with the following exceptions. If the worker's condition has been diagnosed by the attending physician as one of a predisposing condition due to non-industrial circumstances, Ply No. 4 should be used instead of Ply No. 1. It is applied and removed in the same manner as Ply No. 1.

PLY No. 5

(Water Soluble)

Ply No. 5 is for similar hazards as Ply No. 2, with the following exceptions. If the worker's condition has been diagnosed by the attending physician as one of a predisposing condition due to non-industrial circumstances, Ply No. 5 should be used instead of Ply No. 2. It is applied and removed in the same manner as Ply No. 2.

PLY No. 6 for Acids
PLY No. 6A for Caustics

(Water Proof)

This type of cream is specially designed for protection against caustic and acid compounds in both dry form and aqueous solutions as listed in this classification. It is a heavy ointment type of material, requiring only a very thin application over the exposed areas.

Assuming that two daily applications are required, one pound of Ply No. 6 should last the average person from four to five months.

Ply No. 6 provides positive protection against irritants in the following classification:

Abietic
Acetic Acid
Alcohol
Ammonium
Antimony
Arsenic
Barium
Battery Acids
Biological Agents
Calcium
Chromic Acid
Dye Intermediates
Explosives
Fabric Dyes
Formic Acid
Fungicides
Fur Dyes
Hydrochloric Acid
Hydrocyanic Acid
Hydrofluoric Acid
Insecticides
Lactic Acid
Leather Dyes
Malleic
Mercury
Muriatic Acid (strong)
Nickel
Nitric Acid (strong)
Oxalic Acid
Phosphorous
Phosphoric Acid
Photo Developers
Phthalic
Potassium
Quinine
Rayon Treatment
Rubber Compounds
Silver
Soaps
Sodium Carbonate
Sodium Chloride
Sodium Hydrate
Strong Caustic Metal Cleaners
Sulphuric Acid
Wet Asphalt
Wet Cement
Wet Soda Ash
Zinc

Ply No. 6 is applied over the exposed parts of the skin and rubs in, leaving a white film. It requires soap and warm water for its removal at the end of the work period. By actual biological test and microscopic examination, one gram of new Ply No. 6 covering an area of 1½ square inches resists a 20% concentration of nitric acid.

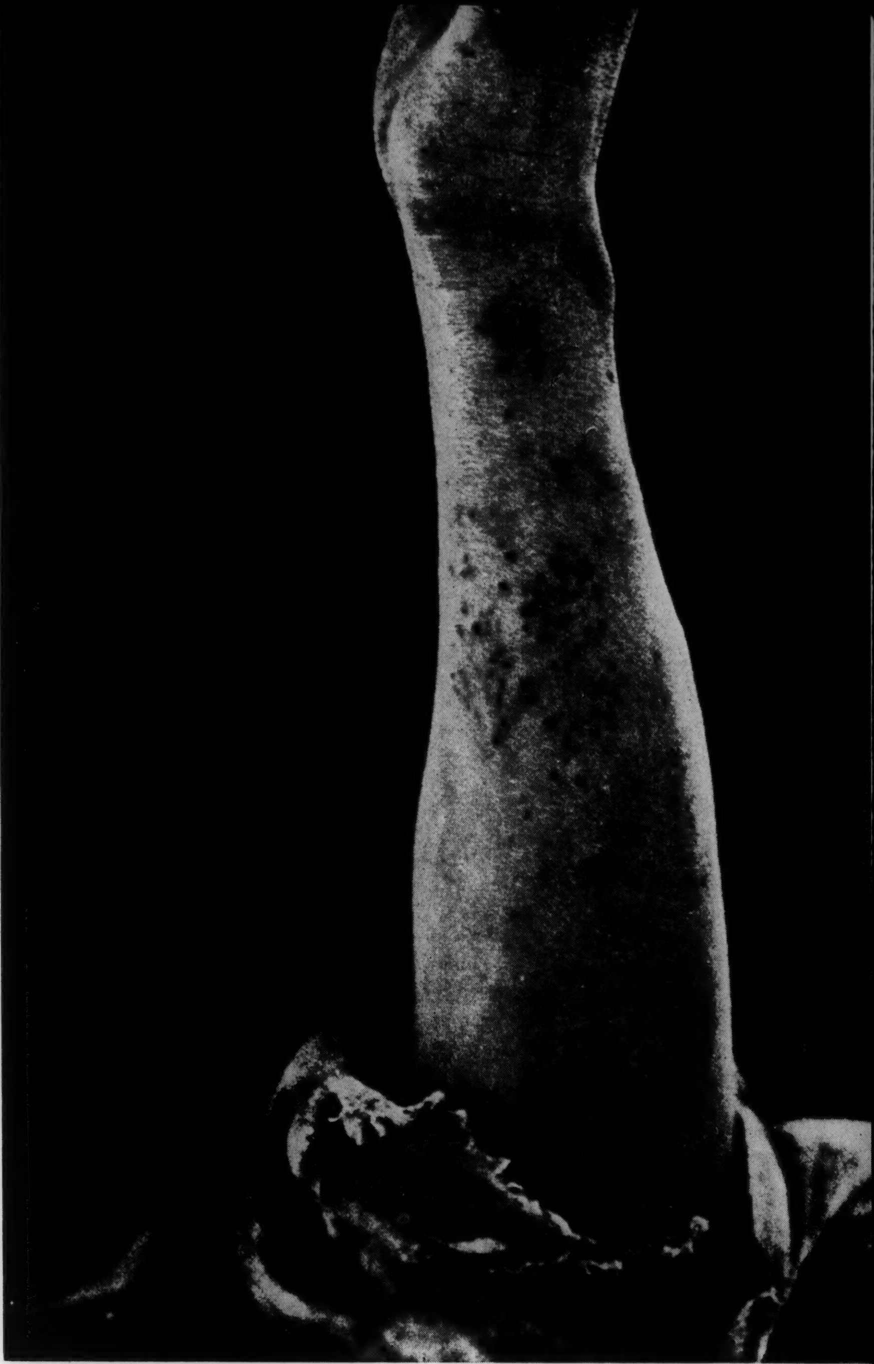


Photo courtesy
United States Public Health Service.

Lime Dermatitis on Dehairer of Hides, Leather Tanning Industry.

See inside back cover for location of nearest distributor

Some of the ingredients in Ply No. 6 are specially treated with violet ray exposure, which changes the molecular structure of the ointment in a manner that makes it highly resistant to acids and caustics. This eliminates the necessity for including in this preparation any insoluble material that is liable to clog up the pores and hair follicles. It is soluble in warm water and soap.

There are no ingredients contained in any of the Ply Products that are not readily soluble in water, eliminating any danger of plugging up the pores and hair follicles, possible sources of irritation.

PLY No. 7

(Water Proof)

Ply No. 7 is for similar hazards as Ply No. 6, with the following exceptions. If the worker's condition has been diagnosed by the attending physician as one of a predisposing condition due to non-industrial circumstances, Ply No. 7 should be used instead of Ply No. 6. It is applied and removed in the same manner as Ply No. 6.

PLY No. 8

Ply No. 8 is for welders and cutters, especially at times when large diameter rods are required. In such operations, flashes occur which cause burns of a severe nature due to the ultra violet and infra-red rays. These will even penetrate several layers of clothing. On the other hand, if Ply No. 8 is used, welders and cutters can work with their shirts open and with minimum clothing (for comfort during hot weather) without danger of burning.

Ply No. 8, like its companion products, is manufactured with a background of biochemical and medical research. It, too, is applied like a vanishing cream that rubs into the skin completely dry and practically invisible. Its ingredients create a perfect block to rays and prevents excessive burning. In a similar manner it would prevent burn from the direct rays of the sun.

Photograph: Courtesy Palmer Shile Company, Detroit, Michigan.

Welders and cutters who use Ply No. 8 can work in comfort during hot summer weather without danger of excessive burning from ultra-violet rays and infra-red rays.

PLY No. 9

This formula, originally prepared for use in industries where perspiration of the hands is injurious to both workers and finished products, has been widely adapted to an ever-increasing number of applications. Manufacturers of high-precision bearings use Ply No. 9 as protection against rust spots caused by normal perspiration. Makers of synthetic finishes have drastically reduced rejections through the use of Ply No. 9 as a protection for their products.

TECHNICAL DEVELOPMENT

Three basic factors guided the development of Ply No. 9. The formula was created to: (1) Reduce perspiration. (2) Decrease sebaceous secretion. (3) Neutralize the alkalinity that occurs on the skin, as well as the normal acidity. Several other secondary factors, including ease of application and removal, extension of duration of effectiveness and economy of production, were also vital to the research.

CLINICAL EXPERIMENTS

Laboratory tests conclusively demonstrated that Ply No. 9 causes a rapid decrease in the perspiration accumulated on the surface of the skin. Ply No. 9 has a pH of 6.9. When alkalie is added to the extent of 112 cc. of N/10 NaOH, the pH is only raised to 9.2, a level still comfortable to skin and mucus membrane. When acid is added to the extent of 74 cc. of 6/10 HCl per 100 cc. the pH is lowered to 4.5, still a concentration comfortable to both skin and mucus membrane.

EASE OF APPLICATION

Ply No. 9 is a liquid that is easily applied like a conventional hand lotion. It disappears as it is rubbed gently into the skin, leaving a fine, invisible film providing dual protection. The effectiveness of Ply No. 9 extends for a period of 6 to 8 hours. It has positively no detrimental effect on the skin and it is easily removed with ordinary soap and water.

Ply No. 9 is completely inactive with respect to the metals or finishing processes in plating operations. Other advantages are of particular significance to manufacturers of explosives, dyes, textiles and finishes.

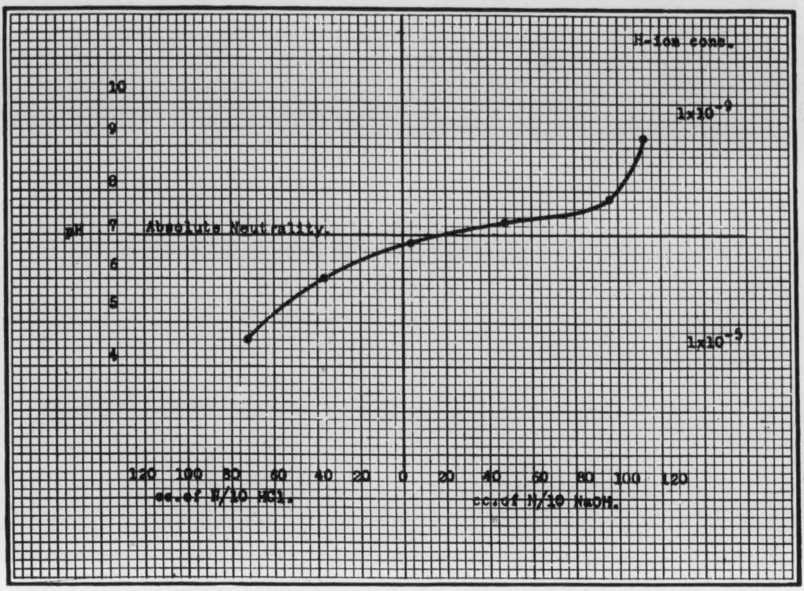


Chart shows effect of acid and alkali on Ply No. 9. Despite heavy concentration, Ply assures safe, comfortable pH.

VARIETY OF APPLICATIONS

The applications of PLY No. 9 have not as yet been fully realized. Each day brings new uses in entirely unrelated fields. Current positive results have been shown in industries devoted to the production of chrome finishes, high-precision bearings of all kinds, crankshafts, piston rings, photographic film, generator-insulating materials, electric light and radio-tube filaments, mica insulators and radio transmission apparatus. In the manufacture of explosives, it has proved effective protection against Diazodinitrophenol, Trinitrophenymethylnitramine (tetryl), and Trinitrotoluene (TNT). The dual-protective characteristics of PLY No. 9 make it the outstanding product of its kind in the field.

Ply No. 9 affords effective protection against TNT, fulminate of mercury, lead azide, phenol, cresylic acid, formaldehyde and coal tar derivatives as well as all hazards found in cutting oils and compounds containing coal-tar rust-inhibitors. Irritation caused by petroleum and hydrocarbon solvents used in operations that require excessive abrasive activity of the hands is also eliminated by means of Ply No. 9.

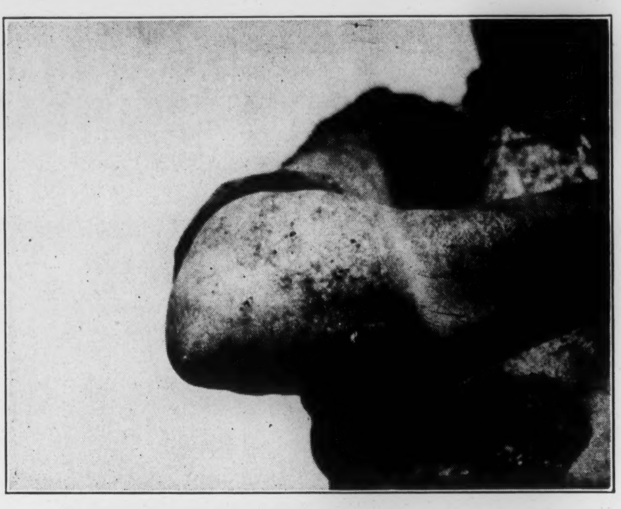


Photo Courtesy United States Public Health Service.

Dermatitis Due to Na_2S (Sodium Sulphides) in Dehairing Hides.

PLYOTHOL

In the event that the type of occupation prohibits the use of a grease-type ointment on the hands while working, because it may contaminate the products handled, in such instances as Photo Engraving, Chrome and Silver Plating, Moulding Products Materials, etc., Plyothol must be used.

Plyothol may also be called a corrective application because it is used and applied after working, rather than before going to work in such hazards. The worker, after washing the hands on completion of the morning's or afternoon's work, applies Plyothol. Also for irritations caused by the following:

Brazilian Walnut
Cashew Oil
Coco bolo Wood
Poison Ivy
Poison Oak
Poison Sumac
Pyrethrum

Plyothol comes in two types, which might be explained as the Drying type and the Non-Drying type. Where the workman's hands and skin are chapped and dried out from the use of chemicals the Non-Drying type should be used. Where the man's hands are quite normal the Drying type should be used, because it vanishes into the skin and does not have to be removed.

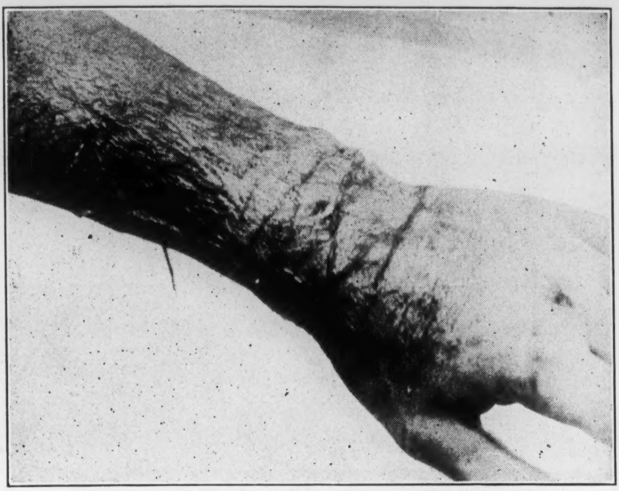


Photo Courtesy United States Public Health Service.

Dermatitis Due to Ethyl Mercury Chloride, a Fungicide.

CONSULTATION SERVICE

Various physical conditions of a plant or process may necessitate a difference in the preparation of the preventive. Moreover, new causes of Industrial Dermatitis are discovered almost daily.

Inasmuch as the Milburn Company cannot simulate all industrial conditions, the only way of knowing what new causes are scourging the workers is through the cooperation of the Safety Department of the organizations affected. With this thought in mind, we sincerely urge you to inform us of your dermatitis problems. We will put all our years of experience and staff of chemists and dermatologists to work on finding a solution for your problem.

We shall be pleased to render the most competent analyses we possibly can, without any obligation whatsoever. Your inquiry containing information of the causes and contributing elements to the dermatoses in your plant is solicited and will be kept confidential.

●

Address Communications to Research Department

PLY-RUSTEX

Despite every normal precaution, manufacturers of high-precision parts and specially-finished metals have noted high percentages of rejections due to perspiration corrosion. Ply-Rustex has been developed to eliminate the "missing link" in rust-prevention and afford protection at the crucial times in machining or processing operations.

Available in either Cream or Liquid form, PLY-RUSTEX Cream differs basically from ordinary rust-preventatives in that it is applied directly to the hands of the worker, in addition to application to the metal. This enables the worker to handle all parts freely without danger of contamination.

HOW IS IT USED?

A pre-work application of PLY-RUSTEX is rubbed into the hands for a few seconds until it is completely dry. This forms an invisible protective coating for the worker's hands as well as the metal. It is positively harmless to the skin and is easily removed at the end of the working period with ordinary soap and water.

PLY-RUSTEX Liquid is applied to the metal by spraying, dipping or brushing at any time before or after the machining or processing operations. It is stable at all temperatures above freezing as well as under variations of 60% to 80% relative humidity.

PLY-RUSTEX ADVANTAGES

It provides protection before, during and after machining or processing. It prevents industrial skin diseases by providing protection against cutting oils, cooling compounds, solvents and other irritating materials. It is economical because it ends all rejects due to perspiration corrosion. In addition, it is easy to apply and remove. No other rust-preventive can make and substantiate all these claims!

PLY GARB

PROTECTIVE SLEEVES AND APRONS

From our vast fund of experience in the field of industrial dermatitis, it was noted that in some operations there was exposure to constant friction and excessive abrasive action. This made it necessary to make frequent applications of PLY liquids or creams to the skin. Moreover, it was found that protection was needed for areas which were not exposed directly to hazards. The saturation of clothing is a case in point. With this background, the Milburn Company perfected an innovation in protective clothing, namely PLY GARB.

HOW DOES IT DIFFER FROM ORDINARY INDUSTRIAL PROTECTIVE CLOTHING?

PLY GARB is featherweight, yet pliable and sturdy. It is made of a specially processed plastic laminated cotton that is thoroughly flame-proof. It offers the advantage of comfort plus maximum protection. Both the PLY GARB Sleeves and Aprons are crack-proof, snag-proof, waterproof and economical as well. They offer protection against acids, chemicals, paints, solvents, oil, dye, water and other industrial hazards. PLY GARB is designed to meet the recommended specifications of the U.S. Public Health Service.

SUPPLEMENT TO MECHANO-CHEMICAL PROTECTION

PLY GARB has been created to supplement the use of PLY Liquids or Creams rather than as a substitute. As noted in the above paragraphs, it has specific applications that are not covered in standard series of PLY formulae. Used in conjunction with PLY, it affords 100% protection.

PLY GARB APRONS

Full length, featherweight, plastic laminated cotton cloth. Protects clothing against saturation by water, oil, acid, chemicals and solvents. Flame-proof in every detail. Adjustable shoulder straps for perfect fit and comfort. Exceptionally durable and pliable. Will not crack or snag on rough metal. Designed to meet recommended specifications of the U.S. Public Health Service.

PLY GARB SLEEVES

Made of plastic laminated cotton cloth, thoroughly flame-proof. Each sleeve weighs less than 1½ ounces. Overall length, 22 inches, affords ample protection against water, oil, acid, paints, solvents, etc. Exclusive design permits free movement and extraordinary comfort. Adjustable snaps for snug fit at wrists. Air vents prevent excessive perspiration. Designed to meet recommended specifications of the U.S. Public Health Service.

The

Protecting Influence

of

Specially Compounded

Salves

Upon Skin Exposed

to

Industrial Chemical Hazards

ACIDS, HYDROCARBON,

and PETROLEUM SOLVENTS

●

MILBURN CO. — DETROIT, MICHIGAN

This is the completed report of the first of a series of studies, which, when completed, will include Acids, Alkalies, Mineral, Animal and Vegetable Oils and Petroleum distillates.

From the results of these studies, and by the same scientific methods, further development work is already in progress, reaching toward a goal of perfection in the manufacture of specially compounded salves for the Prevention of Industrial Skin Diseases.

INTRODUCTION

The purpose of this work was to determine what protecting influences, if any, specially compounded salves have upon skin subjected to chemicals commonly found in industrial plants and industries. The salves of several manufacturers specializing in such products were used as the basis for the study and it is hoped that by making a general survey of (1) skin structure and composition; (2) the underlying principles of skin injury and (3) actual experimental proof of skin protection or lack of protection afforded by salves, compounding could be developed to be more efficient and more specific.

SKIN STRUCTURE

In discussing skin structure and composition one must bear in mind that the skin is not a single substance but a tissue, composed of many substances and formed inclusions, which in themselves differ chemically from the skin. Generally speaking the skin is composed of two parts, the epidermis and the corium resting upon a fatty layer interwoven with fasciae. Through this fatty layer the blood vessels, nerves and lymphatics weave their way toward the skin proper to supply it with capilliaries, nerve endings and lymphatics. In addition the corium contains the sebaceous and sweat glands. Above this corium layer is the epidermis or true skin.

The epidermis can be differentiated into histological layers. The topmost cells of the epidermis are termed the coreum. This consists of a few layers of flattened squamous cells, practically dehydrated, constantly sloughing off. As the water content of the cells increases, the contour of the cell assumes more body giving rise to layers of cells stratum lucidum, stratum granulosum and stratum germinativum. This last layer of the stratum germinativum rests upon the beginning of the corium described above.

The epithelial tissue is an albuminoid keratin but unlike most keratins is insoluble in the usual protein solvents. It responds to the Xanthoproteic tests and Millions reagent and characteristically contains a large amount of sulphur. The layer called the granulosum is supposed to contain (1) a glycoprotein as well as oleic acid in larger proportion than the other layers of the epidermis (2).

The corium on the other hand is chiefly connective tissue. Chemically it is an albuminoid collagen. In common with keratin it is also insoluble in the ordinary protein solvents. It differs from keratin in having less sulphur (3). The nerves composed of lipids, the blood and lymph and the sebaceous and sweat glands and fat each add their components to the general composition. It is interesting to note that some investigators (4) have found that while perspiration may be acid at the surface of the skin, the papillae are alkaline, and that the reducing power of the skin is proportional to the acidity and that the oxidizing power of the skin depends upon its oleic acid content.

It is about such a complicated structure that we refer to when discussing the general and specific effects of skin injury. Chemical impingers on the skin may effect one or all of the structural elements in it. The primary and mildest effect would be a reddening of the skin due to a dilatation of the blood vessels and a rush of blood to that area. Such an effect might be superficial and disappear in short order. Upon prolonged exposure to chemical action, the skin becomes not only reddened but also swollen with a tendency for the hair to fall out and subsequent appearance of pigmentation. If the effect can be classified as chronic the picture would be one of dryness, pigmentation and scaliness with fissures and cracks, loss of hair and atrophy of the skin and sweat glands.

Histologically many changes may be noted. The response is not always the same, however. In some instances the epidermis produces excessive dense keratinized layers. In other places the cells maintain their plump deeply staining nucleus and show no tendency to keratinization. At times vacuoles appear, evidently a sign of the beginning of disintegration, and the epidermal cells are often found in an active mitosis. The corium is indurated in its depth, rarefied in the more superficial layers where it becomes poor in cells and blood vessels and may show areas of necrosis. The capillaries which are there, often become greatly distended and are even so much widened as to give the appearance of a lake of blood the organization of which does not permit healing.

MANUFACTURER'S PROBLEMS

The problem that manufacturers have tried to solve, is how an organ so completely exposed, so complex in structure and so readily injured with varying effects, can be protected when subjected to more than the ordinary environmental hazards. To date the answer has been salves, in an attempt to mechanically and chemically protect the skin against these outside influences. Salves in general relax, protect and soothe the parts to which they are applied, that is they lessen irritation, and as a rule consist of fats or fat-like bodies. The tendency would therefore be to lessen the action of external chemical, mechanical or bacterial irritants thus diminishing injury and pain or any of the other manifestations of irritants. They also delay and diminish absorption and consequently diminish absorption and the systematic effects of absorbable substances, confining the action to a circumscribed locality.

From a practical point of view the fats are indifferent substances, relatively inabsorbable by the cell itself, so that through their impenetrable and adhesive character they form an extra superficial covering to the surfaces to which they are applied and thus hinder the access of irritating or injurious agents. The action is undoubtedly a mechanical one and as such is strictly local. Fine insoluble adhesive powders such as talcum, zinc oxide and bismuth have similar properties.

From a micro point of view, the fats and oils do penetrate the epidermis, at least much more readily than watery solutions. When rubbed into the skin they enter the sebaceous glands and are gradually oxidized and disappear. The exception to this are the mineral fats which remain for a long time in the subcutaneous tissue and if allowed to act long enough would produce chronic irritation. The animal and vegetable fats therefore deserve preference when penetration is desired. Here again an objection can be raised to the use of such substances, and that is the fact that in time they turn rancid especially if exposed to air, light or heat, and especially if they contain protein impurities. The changes that occur consists in oxidation with the development of free volatile fatty acids. The only product free from this objection are the petroleum products and lanolin.

To determine definitely just what changes occur when reagents come in contact with skin and exactly how much protection is afforded by salves, it was planned to use these reagents on skin before and after treatment with these protecting salves. The first phase of the work was confined to such substances, commonly used in industries and containing hydrogen or hydroxyl ions.

The hydrogen ions of acids and the hydroxyl ions of bases or alkalies, part readily with their electric charges and therefore alter the state of colloids. In this way and also by direct chemical action they produce extensive alterations in the functions of cells which are rapidly fatal if they exceed a certain degree. These effects are produced only by the dissociate ions which represents the actual acidity and alkalinity. The activity of an acid or base therefore depends not only on its total concentration but also on its dissociation. The mineral acids which dissociate freely are much stronger than equimolecular solutions of the organic acids or acid salts which dissociate only slightly and consist chiefly of undissociated molecules.

ARTIFICIAL SKIN PROTECTION

Against such external factors the body has a certain amount of protective reserve. The normal living cell in itself is either slightly alkaline or neutral. But it has in reserve tissue carbonates and alkaline phosphates which constitute a stock of potential alkalie. In a like manner there is a reserve of carbonic acid and acid phosphates, a potential storehouse of acid. These are sufficient to neutralize at once all the ordinary attempts of environment to change the actual reaction of the cell, and this entire protective mechanism is further enforced by the amphoteric character of the protein and water content of the cells. When, however, the external forces are of the magnitude met within industrial plants, this self-contained safety mechanism becomes completely insignificant.

EXPERIMENTAL RESEARCH

For the present work the skin of city bred rabbits weighing about three to four pounds was denuded of hair with a dilute solution of chemically pure barium sulfide allowed to act one minute and then washed thoroughly until the washings no longer gave a reaction for sulfide. Patch test areas were then prepared with waterproof adhesive containing a central open square one-half inch in diameter filled with one-quarter inch thickness of long fibered cotton. Each test consisted of saturation of this cotton with one cubic centimeter of reagent, the reagent being permitted to act for one hour, at which time the test was removed and the animal permitted to live 48 hours before autopsy.

The reagents used consisted of five acids and five alkalies, in 10% and 20% concentrations, and each was permitted to act upon unprotected and protected skin areas. The protecting elements have been designated as No. 1, No. 6 and P*. The acids used were acetic, sulfuric, hydrochloric and nitric; the alkalies, ammonium hydroxide, barium hydroxide, sodium carbonate, potassium hydroxide and sodium hydroxide. This gives a range of highly ionided and slightly ionized acids and alkalies.

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* Another manufacturer's product.

The animals used were housed in galvanized metal cages. These animals have been found to be generally hardy and free from disease. Care was taken to keep them free from such afflictions as the snuffles, as well as free of lice and fleas. The skin area available for test made them an economical animal for experimentation purposes.

The ration consisted of a concentrate food containing

Protein	14.04%
Fat	2.59%
Fibre	13.44%
Ash	6.04%
N-free extract	53.03%

Minerals:

Calcium	0.74%
Phosphorous	0.34%
Potassium	0.97%
Sodium	0.36%
Magnesium	0.19%
Sulphur	0.26%
Chlorine	0.45%

Water was given ad lib, occasionally interchanged with lettuce leaves. All vitamins in proper assay were in the concentrate.

RESUME OF EXPERIMENT

10% Nitric Acid: Upon unprotected rabbit skin, a dirty brown pigmentation occurred, the epithelial lining became thin and parchment-like and cracked very readily. Upon section the epithelium became dislodged very readily showing a disrupted stroma still containing hair shafts.

Protected with Ply 1: Surface swollen and inflamed.

Protected with Ply 6: Acute diffuse inflammation in the subcutaneous tissue. Epithelium partly intact.

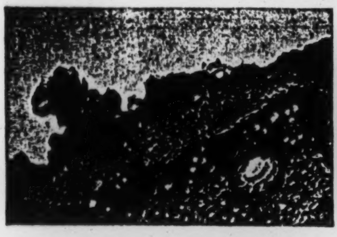
Protected with another manufacturer's product, surface inflammation as marked as with the use of Ply 1.

20% Nitric Acid: Upon unprotected tissue, tissue extremely fragile, pigmented with areas of round cell infiltration.

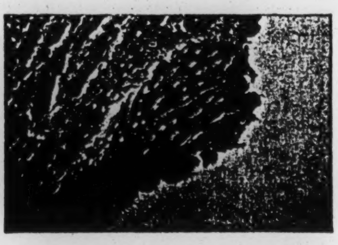
Protected with Ply 1: Surface inflammation only.

Protected with Ply 6: Marked inflammation and round cell infiltration.

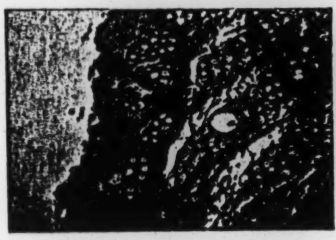
Protected with another manufacturer's product: Slightly round cell infiltration.



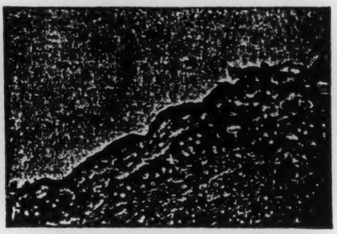
20% nitric acid unprotected



20% nitric acid protected by P



20% nitric acid protected by Old Ply No. 6



20% nitric acid protected by newly developed Ply No. 6

10% Hydrochloric Acid: Unprotected skin shows epithelial desquamation, dehairing round cell infiltration and general inflammatory infiltration into subcutaneous tissue.

Using Ply 1: Same.
Using Ply 6: Epithelium retains a great deal of its contour and fullness. Tissue is dehaired.

Using another manufacturer's product: Round cell infiltration and epithelial desquamation. Tissue is dehaired.

20% Hydrochloric Acid: Unprotected tissue shows dehairing, round cell. infiltration not as marked as with the 10% acid, desquamation is complete.

Using Ply 1: Desquamation and dehairing.

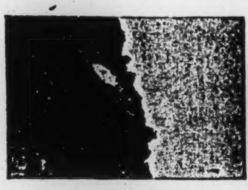
Using Ply 6: Desquamation and dehairing.

Using another manufacturer's product: Complete epithelial desquamation, round cell infiltration and large areas of hemorrhage.

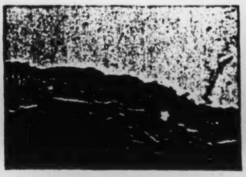
10% Acetic Acid: Using no protection the tissues are not dehaired, with almost complete epithelial desquamation, cellular response and hemorrhage practically nil.

Using Ply 1 and 6: The picture is unchanged.

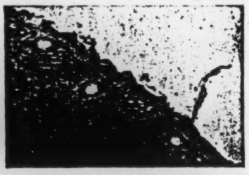
Using another manufacturer's product. The picture is the same.



20% Hydrochloric unprotected



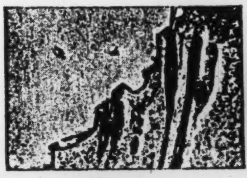
20% Hydrochloric protected by P



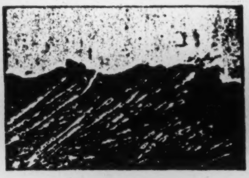
20% Hydrochloric protected by Old Ply No. 6

20% Acetic Acid: Unprotected causes complete desquamation but no dehairing.

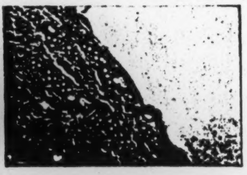
Protecting agents showed no differences.



20% Acetic unprotected



20% Acetic protected by P



20% Acetic Acid protected by Old Ply No. 6

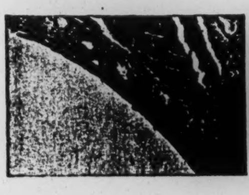
10% Phenol: With this acid used on the unprotected skin, an initial wrinkling occurred, followed by blanching, then a reddening and finally a browning. A local necrosis set in leaving a dry scab without pus formation.

Ply 1. No protection afforded.

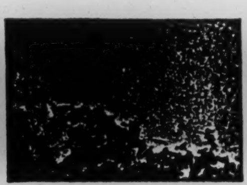
Ply 6. No protection afforded.

Another manufacturer's product. No protection afforded.

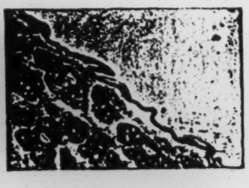
Developed formula. Sufficient protection afforded to leave an unaltered skin.



Phenol unprotected

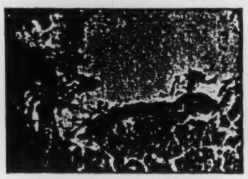


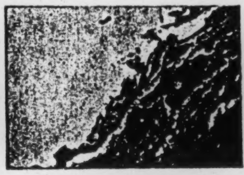
Phenol protected by P

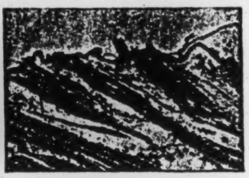


Phenol protected by Old Ply No. 6

10% Cresol: The effect with cresol on the skin is similar to that of phenol, save for the fact that all effects were of a milder degree and the skin did not reach the scab formation stage.


Cresol unprotected


Cresol protected by P


Cresol protected by Old Ply No. 6

Ply 1 and 6 and another manufacturer's product were still uneffective as the protective agent.

CONCLUSION

A study was made of the effect upon the epithelial layer of rabbit skins by highly ionized and low ionized acids, in organic and organic acids. Protective salves were then applied to the skins and the experiments duplicated. All tests were carried out in patch test manner.

It was found that strong acids such as nitric acid in highly ionized state were much more destructive than the acids in a low ionized state. The tissues became pigmented, parchment-like and tendered to the extent that sectioning of them was a hazardous procedure. The reactions were those of a low grade inflammation with round cell infiltration, hemorrhage, desquamation of the epithelial linings and dehairing. Nitric and hydrochloric acid produced practically all these effects. All the protecting creams with the exception of Ply 6 afforded very little protection to the epithelial linings. The organic acetic acid, was the least destructive of the lot, some remnant of the epithelial lining remaining and no dehairing taking place.

It is very evident upon examination of the foregoing illustrations, that while Ply No. 6 (old formula) afforded some protection, it was not efficient to a satisfactory degree.

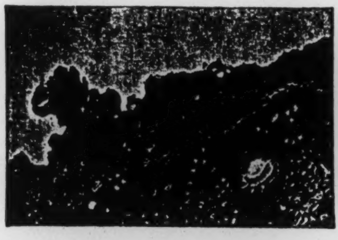
DEVELOPMENT OF NEW FORMULA PLY No. 6

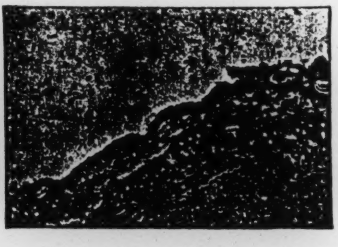
The study on the effect of acids upon skins protected with a salve covering, brought to light several factors. The first was that the salves now on the market are not true or complete protectors against such corrosive agents; that a more impenetrable base, must be incorporated in such compounds in order to be efficient; that in addition a harmless neutralizer is essential; and finally, to offset the possibility of some seepage of the destructive agent through any salves, a healing agent, or one that would tend to heal, must also be incorporated.

With these thoughts in view, many agents were tried in order to obtain the maximum of imperviousness to acids. The final choice was a plastic, soft substance, which had been polymerized to sufficient amount to retain its plasticity and yet not to such an extent that it should lose its applicability for salve formation. A light harmless neutralizer, capable of minute and uniform distribution was also added. And finally an agent whose efficacy as a healer and having a marked tendency to subside inflammatory processes, was also added.

This new formula was called the developed acid formula, Ply No. 6.

Patch tests run with this new formula as a protective covering on the skin of rabbits, using the most destructive of the acids in the previous studies as a criterion of its value, showed it to be extremely inpenetrable to this acid, and left a skin area practically unaffected and almost identical with the picture of an untreated skin area. Illustrated below.


Effect of 20% solution HNO_3 (Nitric Acid)


20% Nitric Acid protected by New Ply No. 6

HYDROCARBON STUDY

I. INTRODUCTION

Continuing the studies on the compounding of salves for the prevention of industrial skin diseases and hazards, the next subject chosen was several hydrocarbons of an oily nature, usually used as solvents and representing an enormous class of similarly acting substances detrimental to workers in their respective fields.

Generally speaking the substances used have effects which are more or less well known. For example benzol and its toxic derivatives, in these experiments nitrobenzol was chosen, is marked in its action producing serious collapse. There is a definite destruction of leucocytes in the circulating blood, and damage profusely through the hematopoetic system, the bone marrow, glands and spleen. The body partially oxidizes it to phenol and excretes it in conjunction with the sulphate radical. Part of it is completely oxidized and destroyed, and part is lost through the lungs. Nitrobenzol, oil of almonds or oil of mirbane has similar actions and an analogous fate. Initially there is nausea, prostation, ganosis, convulsions and coma. The blood appears at times black due to the formation of methhemoglobin. The corpuscles undergo intensive destruction and the other symptoms are probably due to asphyxia. The subacute and chronic poisoning, such as that produced in these experiments, shows icterus, and resembles pernicious anemia. A well known case of the effects produced took on national significance in the cases of shoe dye poisoning which were due to this ingredient. However, symptoms seem to differ in different animals depending upon the general make up and susceptibility.

TABLE I

	Mirbane				Kerosene			Trichlor-ethylene		
	U	1	2	3	1	2	3	1	2	3
Control	110	94	104	108	115	108	122	106	102	103
Hb.	68	72	76	75	104	91	109	99	82	85
Lost	42	22	28	33	11	17	13	17	20	18
Gms. lost	6.8	3.7	4.7	5.4	2.1	2.9	2.0	2.9	3.2	3.0
Control	6.0	5.8	5.8	5.2	6.2	5.9	6.0	7.0	6.5	5.4
RBC	3.4	3.8	4.0	3.8	5.0	4.8	5.6	4.8	6.0	5.0
Lost	2.6	2.0	1.8	1.4	1.2	1.1	0.4	2.2	0.5	1.4
Control	7.6	9.2	6.4	6.8	9.0	7.0	7.8	11.2	8.8	9.0
WBC	4.2	4.8	5.0	6.0	6.6	5.2	6.0	4.2	7.4	7.0
Lost	3.4	4.4	1.4	0.8	2.4	1.8	1.8	7.0	1.4	2.0
Control	5	4.2	6.2	4.4	4.0	4.0	7.0	1.0	4.0	6.0
Icterum	11.4	9.8	10	7.5	7.0	6.0	8	8.0	14	13

The protective influence of salves against absorption through the skin of rabbits using the blood picture as an index of such penetration.

RBC: Add 00,000.
WBC: Add 00.
U: Unprotected.
1, 2, and 3: Various protective creams.

Kerosene is that fraction of crude petroleum made by the decomposition of coal and distills at about 150-300. Its principal constituents are the homologues of the methane series, noneane, decane, and so on up as high probably as heptadecane. At times, napthenes and aromatic compounds are present. Pharmacologically speaking, it may be classed as a volatile irritant. Prolonged application causes a destruction of the skin surface, and the consequent absorption and damage to kidneys and lungs causes cachexia and anemia. It must be kept in mind that this substance is often used in cosmetics, or externally as an irritant, but that this mode of usage does not approximate the severity of usage with which it was applied in these experiments.

The story of chloroform is well known. Locally it is ordinarily applied as an ingredient of liniments. The prolonged use leads to absorption, complete loss of lipoids from the skin, and a picture partially resembling that found in the internal usage.

TABLE II

	Chloroform			Amyl Acetate			Chlor Paraffin		
	1	2	3	1	2	3	1	2	3
Control	95	101	98	112	85	105	107	94	118
Hb	74	91	86	110	85	100	104	81	102
Lost	21	10	12	2	0	2	3	13	16
Gms. lost	3.3	1.7	1.9	0.0	0.0	0.8	0.0	2.0	2.8
Control	4.2	5.8	5.4	8.6	4.4	5.1	5.2	7.8	4.9
RBC	4.2	4.4	3.8	8.0	4.2	4.9	5.0	6.0	4.1
Lost	0.7	1.4	1.6	0.6	0.2	0.2	0.2	1.8	0.8
Control	6.3	7.4	8.8	10.0	5.6	9.0	7.2	9.3	5.2
WBC	8.5	7.2	8.9	8.6	5.0	7.8	7.2	7.5	4.5
Lost	2.2	0.2	0.1	1.4	0.6	1.2	0.0	1.8	0.7
Control	3	5	3	3	6	3	2	5	4
Icterus Increased to	7	7	6	5	8	4	6	9	12

The protective influence of salves against absorption through the skin of rabbits using the blood picture as an index of such penetration.

RBC: Add 00,000.
WBC: Add 00.
1, 2, and 3: Various protective creams.

Amyl acetate, trichlorethylene and chlorparaffin, resemble the other substances in milder degrees.

II. METHODS

Preliminary information obtained during initial experiments with these chemicals upon the skin of rabbits, led to the decision that the most information regarding their penetrability through salves could be obtained by studying their effect upon the blood stream of animals subject to their action.

In the main, the animals were housed, fed, and skin surfaces prepared as outlined in the previous study. Application of the investigated chemical was, as before, by "Patch Test" method. This time, however, in order to produce an effect marked enough to be evident upon analyzing the blood, the "Patch Test" method was prolonged. It was found that a period of two weeks, during which time the test substance was applied, was sufficient to produce an effect upon the blood picture. In addition the area affected was increased to four square inches. This area was clipped and then further dehaired with barium sulphide. The exposed portion was thoroughly cleaned, washed, and dried. A square absorbent cotton pad, three layers thick, was placed on the surface, firmly attached and covered with a rubber dam containing a small opening to be used for access to the cotton during saturation periods. Saturation with 500c. of the chemical under investigation, was performed three times a day for the period indicated.

III. RESUME OF EXPERIMENTS:

Tables I and II completely summarize all the work performed in this second study. Table III shows the effect of these chemicals with the newly developed formula.

The first column in table I shows the effect of Oil of Mirbane upon dehaired unprotected rabbit skin, the effect upon the blood stream being used as the index of penetration through the skin. The animal started with a hemoglobin of 110 before being treated. After two weeks absorption of the oil, the weak and emaciated animal, showed a hemoglobin of 68. This was a fall of 42%, or almost seven grams of hemoglobin lost due to the effect of the oil. When the animal was protected against absorption with Cream No. 1, the loss was 3.6 grams of hemoglobin. With Cream No. 2, the fall ranged from 104 to 76, equivalent to 488 gms. of hemoglobin, and with Cream No. 3, it fell from 94 to 72% or a loss of 5.2 grams.

Apparently neither Cream No. 1, 2 or 3 afforded any marked protection. Cream No. 1, however, seems to be the best of the three.

Running parallel in effect was the fall in the number of erythrocytes. Thus the unprotected animal lost over two and a half million cells, the level falling from six million to three and four-tenths million. Histologically these cells were markedly achromia, with large pale centers, many almost pessary in appearance. Their size varied from small broken or distorted fragments to small shaped cells of microcytic appearance, or large macrocyctic cells larger than the leucocytes. Their shape, while in the main, normal, also showed a few which seemed attenuated or poikelocytic.

The actual fall in the number of cells was almost identical whether a protective coating was used or not. In the unprotected experiment the fall was 2.6 million while with Cream No. 1 as a protection the fall was 2 million. Cream No. 2 and 3 seemed to have some protective effect, but not enough to be significant or to offset the steep fall in the count. Their falls were 1.8 and 1.4 million respectively.

In this series of experiments it will be noted that the color index of all except Cream No. 1 was slightly less than 1. Without any protection, the color index was 1. The same is true when

TABLE III

USING NEWLY DEVELOPED FORMULA

	Control	Mirbane	Control	Kerosene	Control	Trichlorethylene	Control	Chloroform	Control	Amyl acetate	Control	Chlor-paraffin
Hb	85	81	101	97	106	109	118	115	92	90	107	103
RBC	5.5	5.6	5.0	5.3	6.2	6.4	5.8	5.2	5.0	4.9	6.0	6.0
WBC	8.3	8.0	4.4	5.0	7.3	7.1	7.8	7.4	7.5	7.2	4.9	4.7
Icterus	7	7	3	4	5	4	6	6	8	8	6	5

The protective influence of salves against absorption through the skin of rabbits using the blood picture as an index of such penetration.

RBC: Add 00,000.
WBC: Add 00.

Cream No. 1 is used. The indication therefore is that this chemical produces primarily a severe secondary anemia. When unprotected or with the use of Cream No. 1, one is almost led to suspect the production of pernicious anemia.

A very marked effect was that produced upon the leucocytes, commonly referred to as the white cells or fighters in the blood stream. All the animals started with a fairly high normal white cell count, ranging from 7,600 to 9,200. The drop in this protective mechanism in thousands were as follows: Unprotected: 3.4; Cream 1—4.4; Cream 2—14; Cream 3—08. Cream 1 therefore was practically useless. Cream 3 was partially protective against the onslaught upon the white cells. This tendency towards a leucopenia was an excellent gage of the efficiency of protection afforded by the various salves.

With such marked changes in the blood picture it was almost a foregone conclusion that the livers would be damaged and function impaired. The icterus in all cases, protected or unprotected, rose from three to five points in all the animals and created a condition of latent jaundice in all of them.

The experiments using the other solvents ran almost similar courses, but on lower levels of effect. Trichlorethylene and chloroform were just as destructive and at times even more so. Kerosene, amyl acetate and chlor-paraffin seemed much milder in effect.

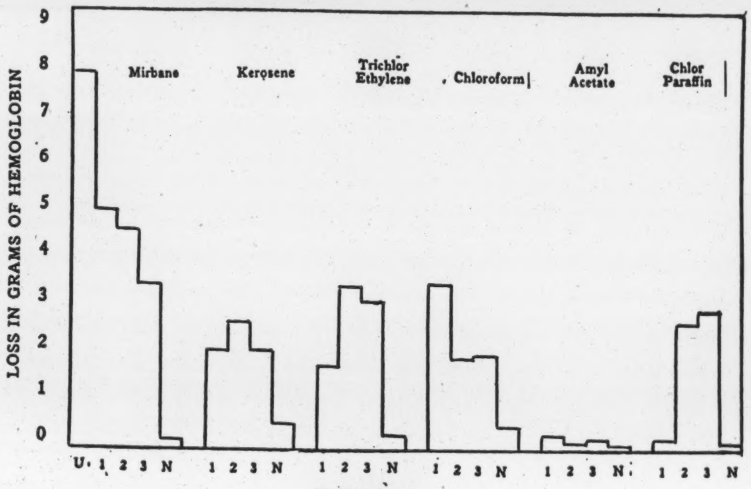
Table I and II give in detail all the fluctuations regarding the effects of these chemicals, permeability through rabbit skin, protected or unprotected by salves ordinarily used. Even more graphically are these effects portrayed in the charts.

While the results were not always consistent, the main picture is definitely there, namely, a distinct fall in the hemoglobin and eythrocytes and a definite fall in the white cells tending towards a leucopenia, and a rise in the icteric index. The exceptions in this series of experiments were amyl acetate and chlor-paraffin plus kerosene. With the amyl acetate the effect was little if any at all. With chlor-paraffin the effect fluctuated. Cream 1 seemed to be quite protective in this case.

The production of a salve impervious to these chemicals or their fumes, insoluble and immiscible in them, acting as a buffer against such outside influences, has been answered in a large degree by the compounding of a new salve.

CHART I

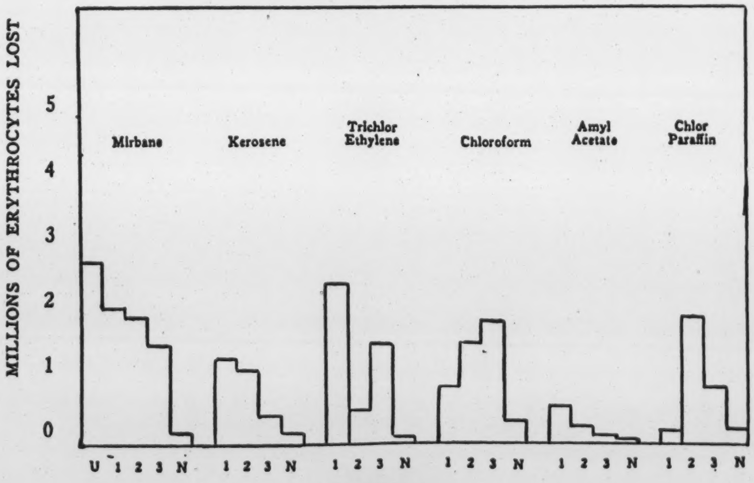
The protective influence of salves against absorption through the skin of rabbits using the effect upon the hemoglobin as an index of such penetration.



U—Unprotected.
Cream 1, 2 and 3
N—Newly developed formula.

CHART II

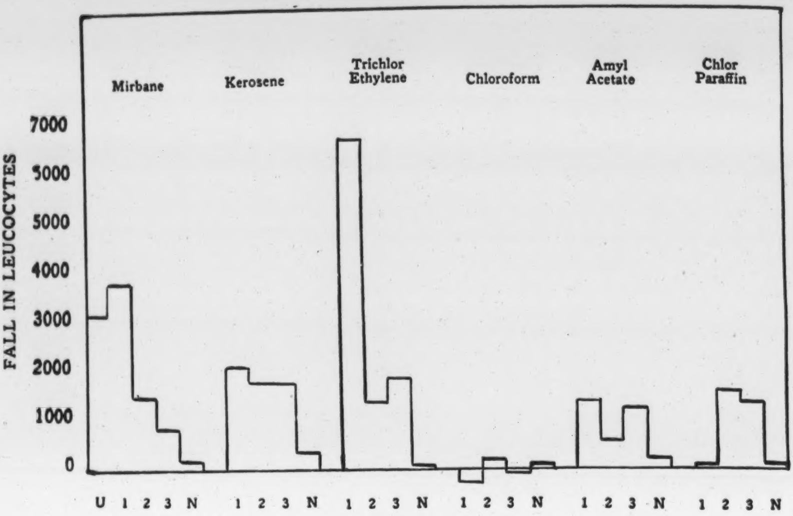
The protective influence of salves against absorption through the skin of rabbits using the effect upon the number of erythrocytes as an index of penetration.



U—Unprotected.
Cream 1, 2 and 3
N—Newly developed formula.

CHART III

The protective influence of salves against absorption through the skin of rabbits using the effect upon the white cell count as an index of such penetration.



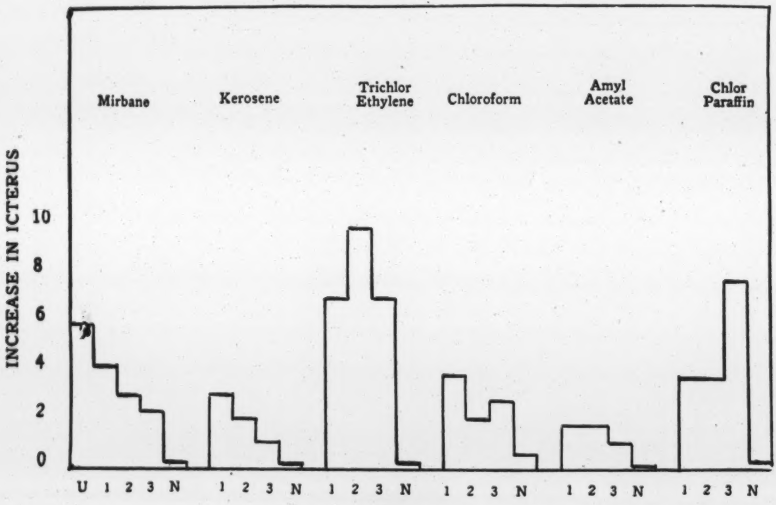
U—Unprotected.

Cream 1, 2 and 3

N—Newly developed formula.

CHART IV

The protective influence of salves against absorption through the skin of rabbits, using the effect upon the icterus as an index of such penetration.



U—Unprotected.

Cream 1, 2 and 3

N—Newly developed formula.

GENERALLY ACCEPTED STANDARDS OF PREVENTION OF OCCUPATIONAL SKIN DISEASES

Preventive measures should be directed into three specific channels.

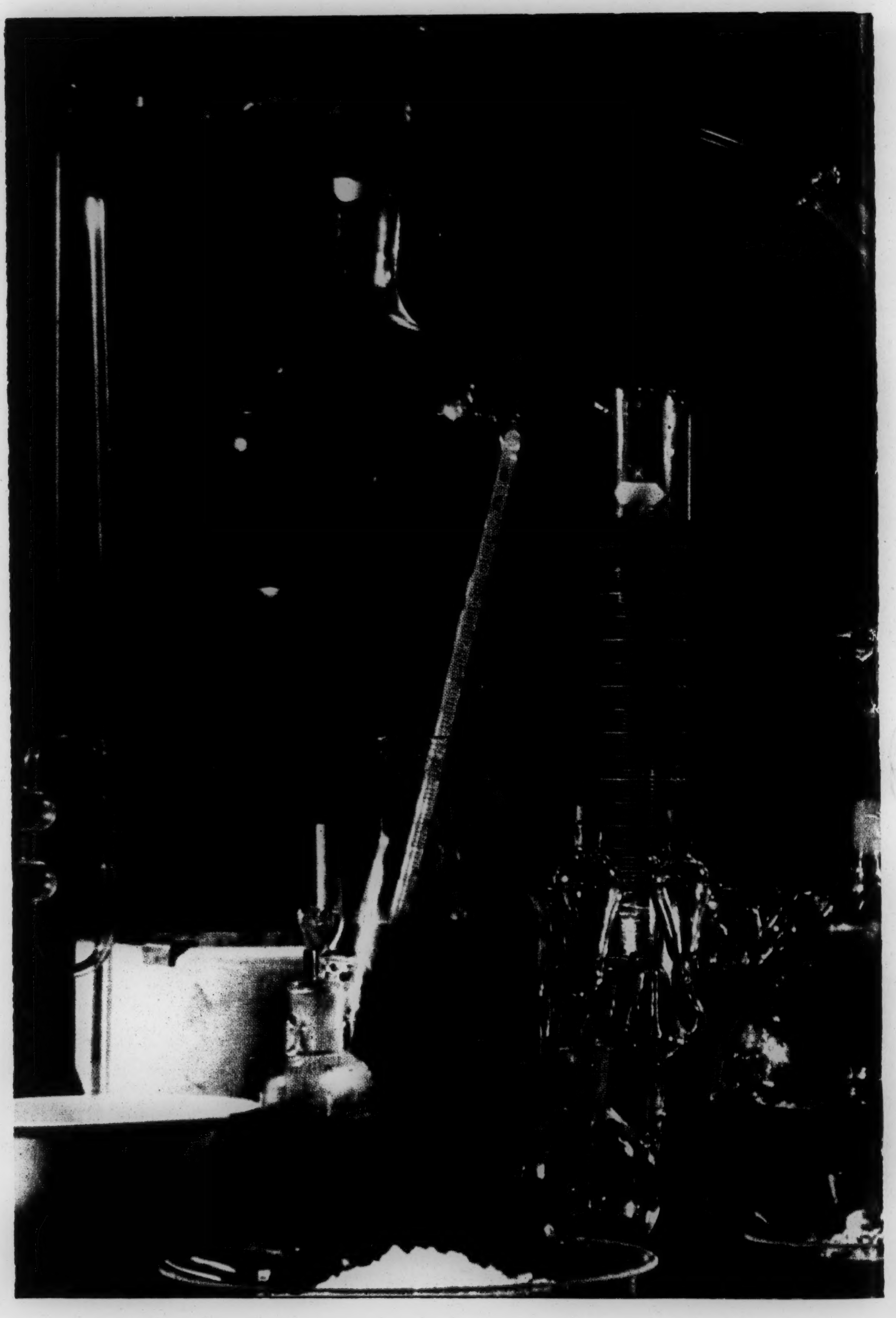
First: Toward the prevention of diseases by education, by cleanliness, and by systematic inspection to enforce the protective standards adopted, and by selection—as nearly as possible—of proper employees.

Second: Toward the prevention of prolonged disability by early detection, the determination of the cause and its removal, if possible, and proper treatment.

Third: Accurate diagnosis of the disease to differentiate between occupational and non-industrial cases.

GENERAL PREVENTIVE MEASURES AGAINST OCCUPATIONAL SKIN DISEASES

1. Abundant facilities for washing purposes.
2. Inspection by experienced observers of the hands and arms in known irritating agents to enforce—
   (a) Cleanliness.
   (b) Proper use of preventive materials furnished.
   (c) Early treatment.
3. Emphasis on the use of such protective materials that are furnished, such as clothing, protective creams and mechanical handling of irritant substances.
4. Complete removal from skin irritants . . . or badly staining or adhesive chemicals BY HARMLESS METHODS eliminating the use of irritating solvents.
5. Prevention of dust and irritation therefrom.
6. Prevention of maceration of skin by liquids, sweat, etc.
7. **Use of protective creams or ointments MADE ESPECIALLY FOR THE PARTICULAR HAZARD INVOLVED. Such ointments must be bland in character neither alkalie**



Basically providing both the cause and cure of the majority of cases of dermatoses, chemistry plays as vital a role in every phase of industrial hygiene as it does in industrial manufacturing processes.

YOUR FIGURE AND YOUR FEET

PUBLISHED BY THE WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
AS A CONTRIBUTION TO THE BETTER HEALTH OF ITS EMPLOYES

A health message

to Westinghouse women

that all

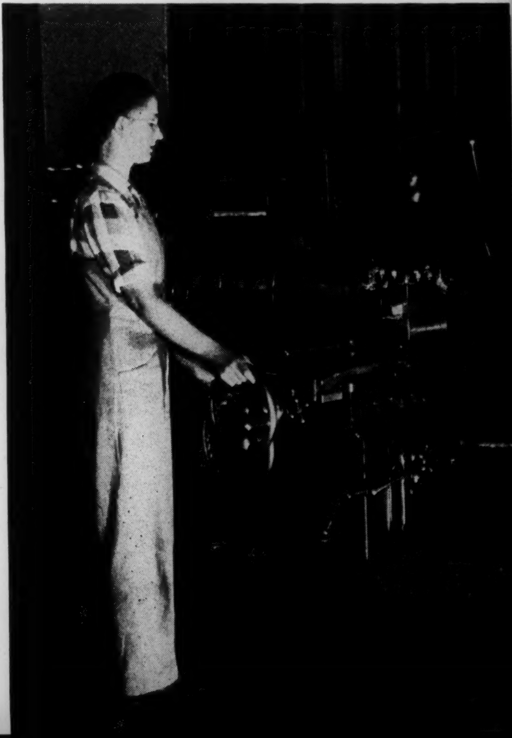
Westinghouse men

should read

YOUR FIGURE

A GOOD FIGURE depends on factors which are, for the most part, within our control. Habits of standing, sitting, and walking; the development of muscles and their tone; the nutritional state; the condition of the feet; and mental attitudes are some of the things that determine the character of the figure.

In this booklet we are going to consider, specifically, two factors: standing posture and the feet. We shall, of course, bear in mind that our physical welfare requires the observance of the rules of healthful living, that true beauty is found only where there is health, and that health is present only when each organ of the body is in the proper relation to the others both in respect to its position and to its function.

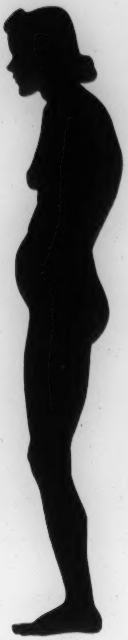


This girl's excellent posture reduces fatigue and makes for better health and greater efficiency

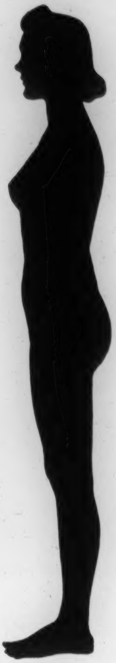
Good posture is essential to attractiveness of figure. It is, also, essential to health because it helps keep the various organs in their proper position and thus enables them to do their work most effectively. As a result, physical vigor is greater, there is more endurance, more resistance against illness, and a higher degree of mental efficiency.

In the ideal standing posture, the abdominal muscles are pulled in, the chest is moderately elevated, the head is held up, and the chin back. The hips and knees are straight. Weight is carried on the heels, the outer border, and the inner part of the balls of the feet.

Poor posture presents a striking contrast to the balance, beauty, and efficiency of the ideal posture just described. It is the unhappy picture of a protruding head, rounded and drooping shoulders, a flat chest, a sagging abdomen, slightly flexed knees, and feet turned outward. The results of such a state go beyond mere lack of attractiveness. In poor posture, the abnormal stress on bones, joints, and ligaments may lead to arthritis, footstrain, backache, and pains in the hips, knees, and legs. The drooping chest and relaxed abdomen result in shallow breathing and a less efficient circulation. The heart may become displaced. The malposition of the abdominal organs may cause indigestion and constipation and may interfere with normal kidney function. The pressure and congestion in the pelvis, caused by the



Incorrect posture



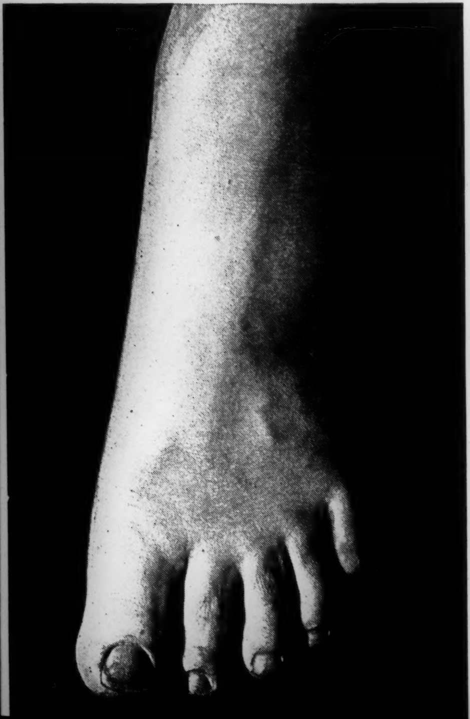
Correct posture

displaced abdominal organs, may lead to menstrual difficulties. Fatigue, lack of endurance, and lowered resistance to disease are other possible results of faulty posture. It is indeed evident that good posture contributes to good health as well as to good looks. And, normal feet are so essential to all three that we shall discuss the feet and their care as a separate topic.

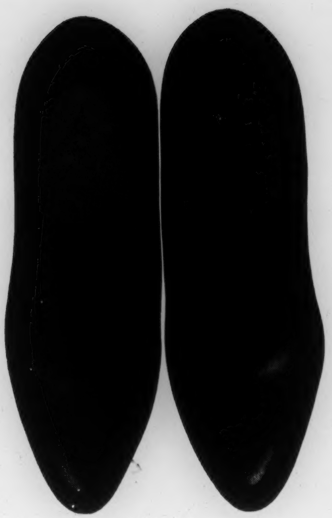
How important are shoes?

There is little reason to doubt that most foot trouble is caused by ill-fitting shoes which deform the feet and render them incapable of functioning normally. Many shoes do the feet great injury by causing the great toe to turn outward. The forepart of the foot should, normally, turn slightly inward. When improper shoes force the great toe in the outward direction, the inner part of the forefoot tends to lose its weight bearing function and an abnormal proportion of the weight is carried by the outer border of the forefoot. The resulting troubles may be serious, indeed. Fatigue, pains in the legs and back, and all the symptoms of poor posture which have been described may be experienced.

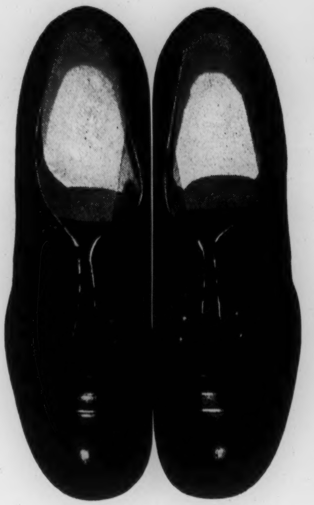
One should select shoes whose inner border is a straight line. The anterior part of the shoe should be roomy allowing the toes to remain in their normal posi-



This foot shows benefits of wearing properly fitted shoes



Shoes of this type weaken and deform the feet



Shoes of this type preserve the normal shape and strength of the feet

tion and to move freely within the shoe. The crowding of the toes which occurs in pointed shoes weakens the foot muscles and may even render these muscles functionless. Obviously, the shoe must be adequate in length as well as in width. The heel should be broad and about one and one-quarter to one and one-half inches in height for women; for men, a height of about one inch is satisfactory. The sole should be thick enough to protect the foot from hard floor surfaces.

Some common foot troubles

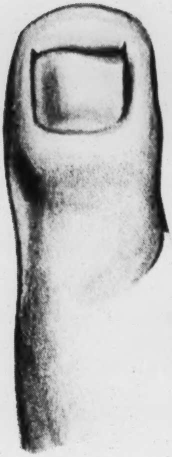
The "weak" foot. Badly fitting shoes, overweight, poor foot support by muscles and ligaments, over exercise, and abnormalities of development may result in the "weak" or "flat" foot. Fatigue, pain in the feet and legs, poor gait, calluses, corns and the other signs and symptoms already described may plague the victim of this condition.

Probably the most effective preventive measure within our control is the wearing of proper shoes. The price of indifference to this basic hygienic need is invariably a heavy one.

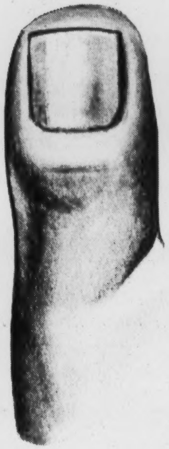
When a definite foot weakness is noted, one should seek the help of a physician interested in disabilities of this character. The remedy may be merely a matter of changing shoes, the temporary use of effective supports, strapping, heat, massage, or other simple procedures. In some cases, however, treatment is prolonged and difficult.

The self-prescription of supports or special shoes is unwise. In many cases, they are not needed. When they are, they must be adapted to the specific needs of the individual, otherwise, instead of eliminating the disability they may, actually, make it worse.

Ingrown toenail. This painful and disabling condition can be prevented by wearing well-fitting shoes and by cutting the toenail properly. The nail should be so cut that the edge lies beyond the soft tissues of the toe. It should not be cut too short.



Toenail improperly trimmed



Toenail properly trimmed

Do not try home surgery to correct the ingrown toenail particularly in the presence of inflammation. Pain, redness, and swelling are danger signals of great importance. Seek professional medical aid. After treatment has been given, remember that the condition may well recur unless the proper shoes are worn and the nails are henceforth properly trimmed.

Corns. Corns have surely contributed more than their share to the sum-total of needless human misery. They are caused by pressure and rubbing and are frequently on the outer and upper side of the small toe. They occur elsewhere, of course, and are not infrequent between the toes. A normal foot in a properly fitting shoe is not subject to corns. Very often, indeed, a mere change to well-fitting shoes will bring permanent relief.

The application of certain chemicals locally, cutting, and electrosurgery have been among the common means used to remove corns. The disastrous results in many cases where the victim has cut his own corns should persuade us to refrain from any activity of this sort. If chemical corn removers are used they should be carefully applied to the corn itself. The surrounding skin should be protected with vaseline.

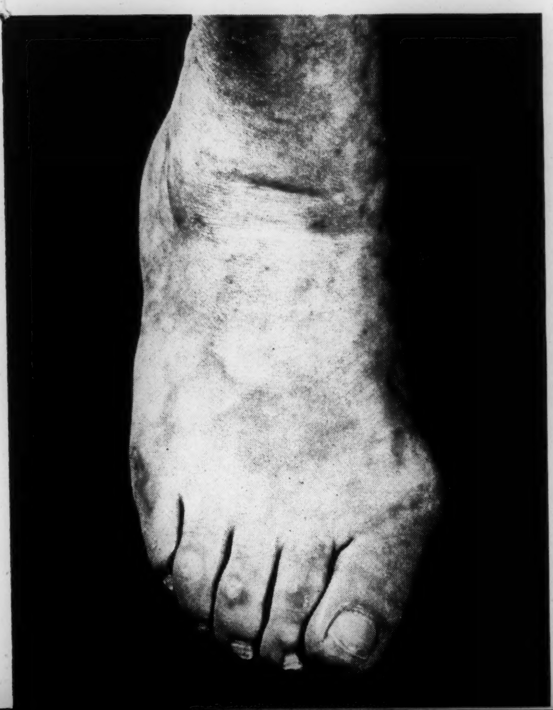
It is to be remembered that corns will recur if the type of shoe worn will permit rubbing and pressure.

Calluses. The areas of thickened hardened skin often seen on the soles of the feet are also caused by pressure and friction. They are usually seen in the weak foot. They may cause considerable pain and disability. Removal affords only temporary relief. Frequently, supporting pads must be used but to be effective they must be properly fitted.

Plantar warts. These are warts which occur on the sole of the foot. They are extremely painful. Among the different forms of treatment used may be mentioned X-ray therapy, electrosurgery, and the injection of certain substances locally. Often, the use of supporting pads may be enough to cause them to disappear.

Bunion. This is an abnormality of the joint between the great toe and the bone behind it. The toe deviates outward producing a severe deformity which interferes with the function of the foot. The joint is often painful. The cause is the poorly fitting shoe which forces the great toe outward from its normal position. The deformity is not seen in those who have worn proper shoes. In treatment, pads are frequently worn between the great and second toes and pads are used to prevent pressure on the joint of the great toe. Shoes of sufficient width to help in this matter are often prescribed but despite these and other measures, many of these cases require operation. Again it must be emphasized, that properly fitting shoes will prevent the occurrence of this disabling deformity.

Ankle sprains. Usually, these sprains are caused by a severe inward twist of the foot which injures ligaments on the outer side of the ankle. They may occur in other parts of the foot also. There are pain, swelling, and discoloration at the site of injury and the victim walks with a limp. The exact type and the extent of the injury vary considerably and the treatment varies accordingly. Rest is usually the first requisite although inactivity is not always enforced. Elevation of the foot and the use of cold compresses



A bunion, the result of wearing improper shoes will reduce the swelling. Some physicians, on the other hand, make very successful use of warm moist compresses; others use cold at the beginning of treatment and heat later. The foot is strapped in the position required by the type of injury and use of the foot is gradually resumed. At times, plaster casts are necessary.

It is urgent to have medical assistance to insure proper care. In some cases an X-ray may be required to determine whether a fracture is present.

Wounds and blisters. Puncture wounds of the feet are not rare occurrences. Frequently, it is wise to administer tetanus anti-toxin and the physician should be consulted to decide this point. The mortality in cases of tetanus is extremely high and puncture wounds are particularly good breeding grounds for the organism causing this disease. The particular treatment the wound receives locally depends on its type and the degree and character of contamination found.

When foreign bodies are suspected to have entered the foot, it is best not to walk upon it before the physician has examined the injury. Otherwise the foreign body, especially if it is a needle, may move sufficiently from the point of entrance to make its location quite difficult.

Blisters are due to the pressure and rubbing of badly fitting shoes. They are apt to occur over the heel although they are found elsewhere, particularly near the base of the great toe. The blister should be protected by removal of the offending shoe and by the use of a gauze pad or other device which will prevent further rubbing. If the blister ruptures, boric acid ointment and a protective dressing may be used.

Blisters are potentially very dangerous. Fatal infection has developed in them. This is another apparently insignificant condition that requires skilled professional care if life and limb are to receive adequate protection.

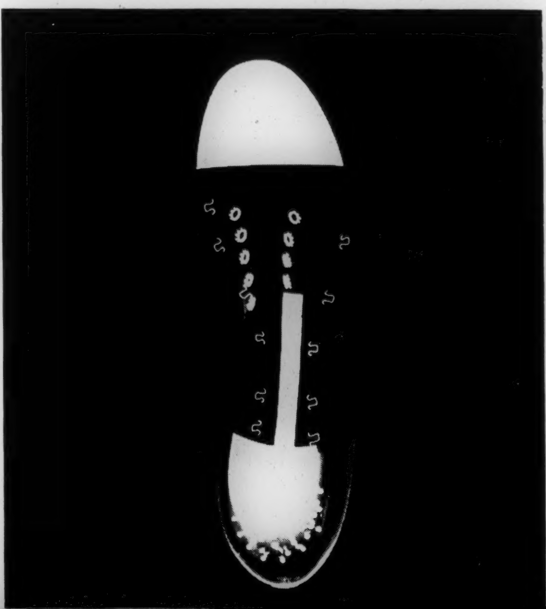
Perspiration. Excessive perspiration of the feet is an annoying disorder which has a variety of causes. It may be due to foot strain, poor circulation, very warm footwear, excessive use of the feet, abnormalities of the skin, nervous disorders, and other disturbances. Among the measures used to correct this trouble, those intended to relieve foot-strain should be emphasized. Again, it is necessary to insist upon the proper type of shoe. To help keep the feet dry, the use of foot powders has been advised. Simple cleansing of the feet with soap and water followed by an alcohol rub may be helpful. Contrast baths, or alternate immersion in warm and cool water may also be beneficial. Many drugs are used but they are beyond the scope of this discussion. Treatment of nervous disorders or of other conditions may be required depending on the underlying causes of the excessive perspiration.

Decomposition of the perspiration results in offensive odors. The treatment is usually aimed at a control of excessive perspiration and at the elimination of organisms which may cause the decomposition. In some severe cases, X ray and even certain forms of surgery have been suggested.

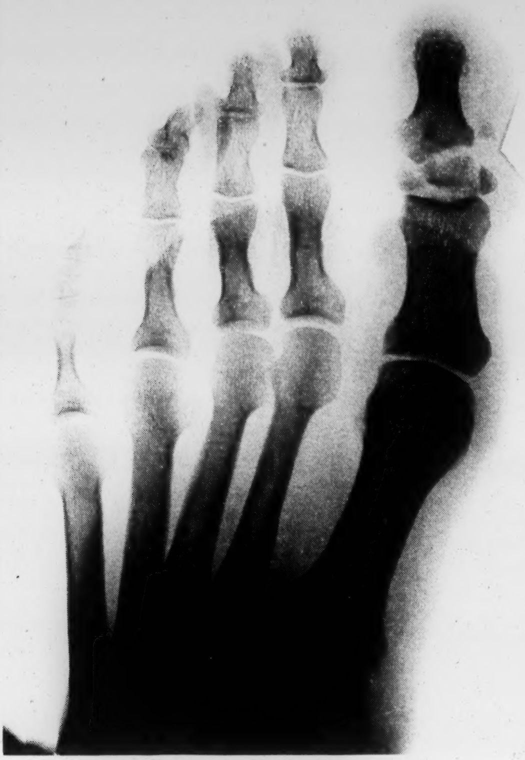
Fungous infections. The warmth and moisture of the human foot and the character of its perspiration encourage the development of a group of fungi which cause "athlete's foot". The symptoms of these common infections are known to countless thousands of victims. Usually, the most troublesome is the intolerable itching. There may be swelling, redness, cracks in the skin, and small blisters. The skin between the toes is moist and rubs off readily. The nails may be involved and may become thick and brittle. Dangerous infection may arise in the presence of athlete's foot. This fact together with the necessity of adapting treatment to the stage of the disease suggests the wisdom of medical consultation.

Cure of such infections may offer little trouble or may be very difficult, indeed. In addition to various applications, ultraviolet and X-ray treatments have been used. Infected nails may have to be removed.

In prevention, the reduction of excessive perspiration, keeping the feet in good condition by the elimination of foot strain, cleanliness, and the exposure of the feet to air and sunshine are helpful. Since infection is often contracted in the gymnasium, the swimming pool, locker rooms and similar places, it is advisable to expose the feet as little as possible to contaminated floors. The use of foot baths of a one per cent solution of sodium hypochlorite is a common preventive measure.



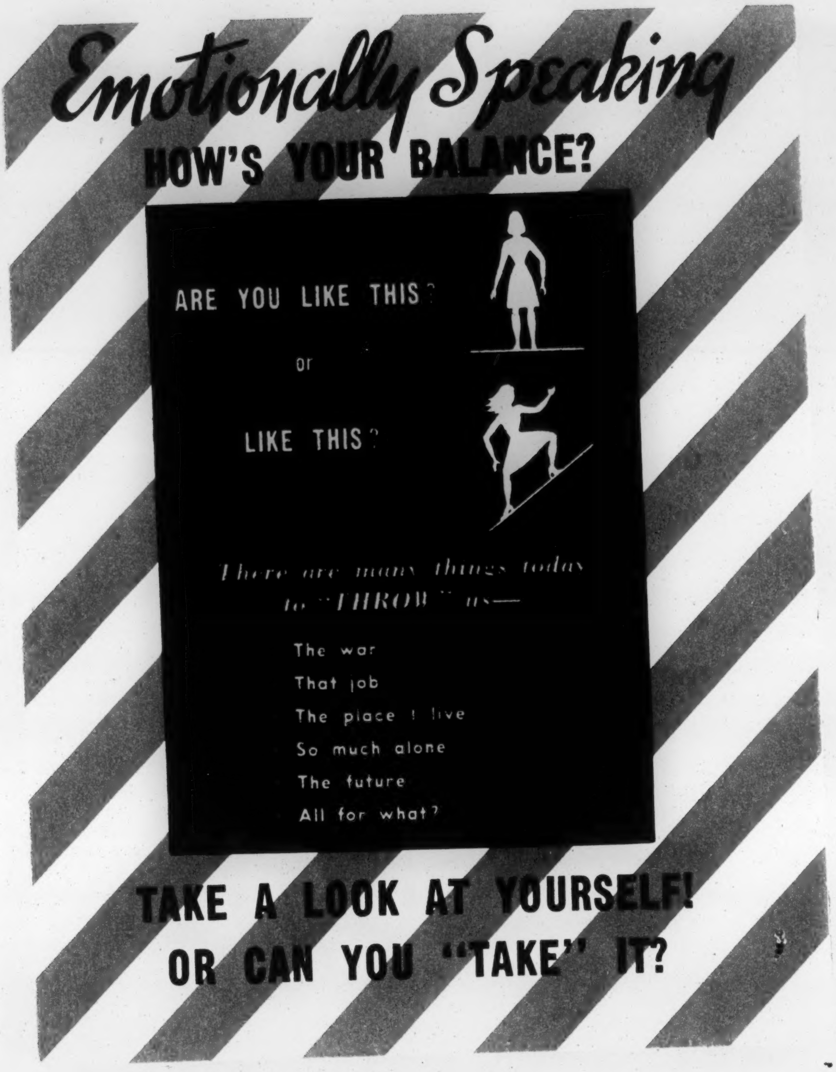
X-ray of safety shoe showing protective steel toe



A type of fracture which can be prevented by safety shoes

Safeguarding the feet from accidents

The foot is subject to serious injury from a variety of hazards. Accidents are particularly apt to involve the toes. A great measure of protection is possible through use of "safety shoes" which contain a strong protective steel plate in the toe of the shoe. Many individuals have been saved from painful and disabling injuries by these shoes and their use should be universal wherever the hazard of injury to the feet exists.



Emotionally Speaking

HOW'S YOUR BALANCE?

ARE YOU LIKE THIS?

or

LIKE THIS?

There are many things today to "THROW" us—

The war
That job
The place I live
So much alone
The future
All for what?

TAKE A LOOK AT YOURSELF!
OR CAN YOU "TAKE" IT?

This is not a test—

It is not a lecture—

It is a way of taking

a personal accounting.

On the right are listed what the mental hygienists call some "do's and don'ts" for balanced living. There is no score, but too much on the right-hand side means a harder job of living and much less fun.

Good business means good control. If you are in the red, get out!

READ LEFT TO RIGHT. CHECK THE WORDS THAT SOUND LIKE YOU AND LIKE WHAT YOU DO MOST OF THE TIME . . .

ASSETS (good) MOST OF THE TIME	CHECK HERE	LIABILITIES (poor) MOST OF THE TIME	CHECK HERE
I face facts		Escape whenever I can	
Admit my fears		"Alibi" my fears	
Stand honest criticism		Can't take it	
Live in the present		Dwell on the past	
Daydream toward accomplishment		Dream but never do	✓
Work persistently		Dawdle halfheartedly	
Take initiative		Wait for others to lead	
I like people		They bore me	
Can lose gracefully		Am miserable when I fail	✓
Acknowledge ability of others		See only weak points	
Associate with many groups		Look down on foreign ways	
Try to have good social relations		Constantly offend	
Develop skills		Am afraid to try things	
Make my own decisions		Am dependent on others	✓
Have self-respect		Overrate myself	
Am independent but cooperative		Am independent but unneighborly	
Make personal sacrifices for others		Think of myself as the center of everything	
Have a sense of humor		No sense of fun	
Keep feelings in their proper setting		Have emotional hangovers (from job to home, home to job)	
Have a set of values by which I act		No fine purpose in life	
Have a religious faith by which I live		Turn occasionally to religion when life gets out of hand	✓

WHERE DO YOU STAND? WHAT WILL YOU DO? . . . . . (TURN THE PAGE FOR SUGGESTIONS)

WHAT YOU YOURSELF MIGHT DO . . .

(After You Have Read Inside)

1. **Read more about people** and why they behave as they do. A discussion of assets and liabilities will be found in the pamphlet **Have You Met Yourself? — A Psychological Introduction** by Helen Southard (Womans Press, 1942, 20 cents). Also see **Supply Lines for Morale** by Kathleen MacArthur (Womans Press, 1942, 25 cents).
2. **Begin with some one asset.** Try to make it yours.
3. **Talk over your liabilities with someone:**
    - Your minister, priest or rabbi
    - An understanding friend or relative
    - Ask at the Y.W.C.A., Y.M.C.A., USO, club, school or college about professionally qualified personal counselors.

WHAT A GROUP MIGHT DO . . .

1. Give out these leaflets at a meeting. At next meeting have psychiatrist, psychologist or counselor lead a discussion on emotional balance.
2. Pay a professional counselor to spend some time in personal interviews (a fee from each person).*
3. Get your club leader to write to 600 Lexington Avenue, New York, N. Y. for suggestions on (a) how to rate each other on emotional balance, (b) how to substitute selected readings for a speaker (in communities where leadership is unavailable).

*Be sure to have professionally recommended persons. Check with professional rosters.

600 Lexington Avenue, New York, N. Y.
THE WOMANS PRESS, New York, N. Y.

U. S. Navy Department • U. S. Maritime Commission

Minimum Requirements
FOR
SAFETY AND INDUSTRIAL HEALTH
IN
CONTRACT SHIPYARDS

UNITED STATES MARITIME SERVICE

Approved
U. S. Navy
Jan. 20, 1943

Approved
U. S. Maritime Commission
Feb. 9, 1943

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WOMEN'S BUREAU
U.S. Department of Labor
Washington, D. C.

U. S. Navy Department
WASHINGTON, D. C.

U. S. Maratime Commission
WASHINGTON, D. C.

To All Contractors Constructing Ships for United States Navy–United States Maritime Commission:

As a result of the national conference on safety and health in shipyards holding contracts with the United States Navy and Maritime Commission, conducted under the auspices of these agencies in Chicago December 7 and 8, 1942, a unanimous agreement was reached upon the minimum standards which have now been approved by the Navy Department and United States Maritime Commission and which should be put into effect in shipyards holding contracts with the two agencies.

These standards represent a specialized study based upon a fact-finding survey on all coasts by experts in that field. They have received the unanimous concurrence of the representatives of the medical and safety departments and of labor-management committees from shipyards on all coasts.

The necessity for conserving manpower and promoting the physical welfare, health, and safety of what shortly will amount to one million workers in shipyards requires that careful observance of standards for the prevention of accidents and protection of health be accorded. Aside from the weight which must be given humanitarian considerations, it is simply good common sense that as much care and attention be given to protecting the human factors in the war production program as is given machines.

Under the administrative direction of the Maritime Commission, safety and industrial health consultants will be made available in all regions wherein shipyards holding contracts with the Navy and the Commission are located.

Each contractor is hereby given notice that the Navy Department and the Maritime Commission will expect full and complete compliance with the minimum standards which bear the approval of the Navy Department and the Maritime Commission, and each is requested to give full cooperation to the consultants on health and safety who will be charged with the coordination and supervision of the safety and health programs of the two agencies.

The cumulative restriction of manpower makes speedy attention and comprehensive action in respect to the subject matter hereof of vital importance.

Frank Knox
Frank Knox, *Secretary of the Navy.*

E. S. Land
E. S. Land, *Chairman,*
U. S. Maritime Commission.

UNITED STATES NAVY—MARITIME COMMISSION

MINIMUM REQUIREMENTS

FOR

SAFETY AND INDUSTRIAL HEALTH IN CONTRACT SHIPYARDS

S and H-1. Introduction.

1.1 The standards for industrial health and safety as presented in this manual cover only minimum requirements. It is not to be assumed that compliance with these minimum standards is insurance of the development of good health and safety records.

1.2 It is recognized that in many shipyards, standards for health and safety are already in effect which go beyond the requirements of those listed here. The Maritime Commission and Navy urge that any standards of higher level be continued and that where substandard conditions of health and safety exist, they immediately be brought to the required standard or better.

1.3 In all cases the use of the words *shall* or *must* indicates that compliance with that section of the minimum requirements is mandatory. Where the words *should* or *may* are used the section may be considered desirable but not necessarily mandatory under certain circumstances which the contractor in his discretion may determine.

MINIMUM REQUIREMENTS FOR INDUSTRIAL HEALTH

H-2. Medical Facilities.

2.1 *Personnel.*—Yards employing up to 5,000 men should have two full-time physicians, and one additional physician for each additional 5,000 men. Yards with less than 2,000 to 3,000 men will not need full-time physicians.

2.2 Specialists in the various branches of the medical profession available in the area should be consulted as indicated.

2.3 Yards employing up to 5,000 men should have in the main dispensary six full-time nurses and three additional nurses for each additional 5,000. Additional nurses will be required for first aid stations.

2.4 There should be at least three clerks employed in the medical department for each 5,000 employees.

2.5 One ambulance driver should be available per ambulance per shift.

H-3. Physical Facilities.

3.1 The medical department should be provided with:

a. A waiting room with suitable registration facilities.

b. A general treatment room.

c. An eye treatment room.

d. A minor surgery room.

e. A ward with three beds for the first 5,000 employees, and one bed for each additional 10,000.

f. Doctors' offices and private examining rooms.

g. A nurses' office and dressing room.

h. X-ray room for yards employing 5,000 men and above.

i. A physiotherapy room.

j. Toilet facilities for doctors, nurses, and patients.

k. A storeroom for general medical stores.

l. X-ray files and viewing room.

3.2 First-aid treatment rooms, manned by nurses, should be provided wherever there is overcrowding at the main dispensary and loss of time due to distance from shipways and shops. These sub-stations may be located under building ways or near locations where the number of men working is large so that the distance a man need travel to a sub-station will not exceed approximately 400 yards.

H-4. Equipment.

4.1 The following equipment should be provided:

a. One ambulance for each 15,000 employees, or reasonable fraction thereof, with an ordinary passenger car always in reserve.

b. In some yards a station wagon is used satisfactorily inside the yard and an ambulance used only for trips outside.

c. An X-ray unit for yards employing about 5,000 men and above.

d. Medical and surgical stores required for minor surgery, eye injuries and physiotherapy.

H-5. Records and Forms.

5.1 The following records and forms are recommended:

NOTE.—*In an emergency no form need be filled out.*

a. A form authorizing the workman to report to the medical department for examination or treatment issued by a foreman or leading man or other supervisor. This shall show time of issue, arrival at dispensary, discharge from dispensary and return to work.

b. Appointment form for revisits and retreatments issued by the physicians and nurses.

c. A disposition form issued by physicians and nurses indicating return to work, hospitalization, to home, or other disposition.

d. A complete and accurate permanent filing system recording personal data, nature and cause of injury, diagnosis, treatment, disposition, and results.

e. The necessary state and insurance company forms.

f. Daily report to the safety department showing all new cases for the day, together with the nature and cause of injury, and the *diagnosis.*

g. The adoption of the standard nomenclature when made available by the Council on Industrial Health of the American Medical Association, Chicago, Illinois.

H-6. Examinations.

6.1 Physical examinations to insure proper placement of employees shall be given.

6.2 Periodic check examinations shall be given men working in occupations potentially hazardous to themselves or others, as for example to crane operators, locomotive and hoisting and portable engineers. Periodic check examinations should be given men in jobs in which there may be health hazard, as for example to sand blasters, radium and X-ray workers, and paint sprayers.

6.3 Special examinations such as X-ray, seriologic and urinalyses shall be given in the individual case as indicated and in accordance with local needs.

H-7. Air Raid Precautions.

7.1 The medical department shall locate, equip, and maintain such emergency first aid dressing stations as may be deemed necessary to handle air raid casualties.

7.2 A certain number of yard employees shall be trained in first aid procedures to render assistance to the medical department in handling air raid victims.

7.3 Close cooperation should be maintained with the local civilian defense officials in order that evacuation and care of air raid victims may be carried out to the best advantage.

7.4 In keeping with local army and navy regulations, steps should be taken to provide protection of dispensaries by sandbags, or otherwise, from fragments and concussion of bombs.

H-8. Responsibilities of the Medical Services.

8.1 Frequent inspection of the yard by the medical staff shall be required in order that physicians may become familiar with shipyard jobs and thus help intelligently in preventing accidents and occupational disease.

8.2 Close collaboration shall be maintained with the safety department especially in regard to records of accidents and absenteeism.

8.3 It shall be the joint responsibility of the medical and safety departments through the supplies department to know the composition of paints, thinners, paint removers, and other chemicals used in the yard, and to see that the workers exposed are protected by the best safety practices.

8.4 As in the general practice of medicine the confidential relations of doctor and patient shall be maintained.

8.5 It is certain that in the near future women in large numbers are to be employed in the mechanical trades. It is necessary in shipyards to make special provisions for this class of patients. This will necessitate the establishment of separate waiting, treatment, and examining rooms. In yards where the number of employees is large, it may be logical to establish a separate dispensary for the handling of women patients.

H-9. Sanitary Inspections.

9.1 *Cafeterias and canteens.*—It shall be the duty of the medical department to adapt from Army and Navy standards, in reasonable conformity with the local health department rules, and inspection scheme to include preemployment examination of food handlers, quality and quantity of food, general cleanliness and comfort, screening, dishwashing, garbage and waste disposal. These inspections shall be made at unscheduled times and never less than once each week.

9.2 *Water supply, sewerage, and waste disposal.*—In cooperation with Maritime and Navy engineers the medical department shall inspect and report upon the above as often as seems advisable, but not less than twice yearly.

9.3 *Salt tablets.*—Salt tablets shall be made available to all employees and shall be kept in covered dispensers appropriately located.

H-10. Respiratory Protective Equipment for Shipyards.

The U. S. Bureau of Mines, 4800 Forbes Street, Pittsburgh, Penna., maintains a laboratory which tests and *approves* for use in industry respiratory protective equipment of all kinds. The Maritime Commission and Navy will require the use of *approved* equipment throughout all yards. The safety department shall be responsible for instructing men in the proper use of such equipment and for the maintenance of ample supplies.

10.1 Details of Bureau of Mines respirators with names of manufacturers, prices, and descriptions can be obtained from the Bureau or from the Maritime Commission.

10.2 The safety department shall be responsible to the management for cleaning and sterilizing all such equipment as often as may be agreed upon with the medical department. (A method for such sterilization is included in these standards; see section H–12.0)

10.3 *General requirements for respirators.*—

a. Adequate protection as defined by American Standard Safety Code for the Protection of Heads, Eyes, and Respiratory Organs. Handbook H–24, Nov. 1, 1938. Superintendent of Documents, Washington, D. C.; price 15¢.

b. Comfort (light weight and not obstructive to vision).

H-11. Jobs Requiring Respiratory Protective Equipment.

11.1 *Dust.*—

JOBS	PROTECTIVE DEVICES
Silica of Sand Dusts (as in sand blasting)	(1) Abrasive blasting helmets. (2) Dust respirator.
Lead Dust (as in mixing paint)	(1) Air line respirator. (2) Lead dust respirator.
Asbestos (as in covering pipes)	(1) Air line respirator. (2) Dust respirator.

11.2 *Metal fumes and smokes.*—

JOBS	PROTECTIVE DEVICES
Lead and zinc oxide from welding and burning.	(1) Air line respirator. (2) Fume respirator for lead. (3) Dust respirator for zinc oxide.

11.3 *Solvent vapors.*—

JOBS	PROTECTIVE DEVICES
Spray painting, both indoors and outdoors. Paint removing, usually indoors Cementing, usually indoors Cleaning, usually indoors Degreasing, usually indoors	(1) Air line respirator. (2) Chemical cartridge respirator.

11.4 *Acid gases and mists.*—

JOBS	PROTECTIVE DEVICES
Pickling (indoors) Cleaning (indoors) Degreasing (indoors)	(1) Mist respirator. (2) Chemical cartridge respirator.

11.5 *Alkali mists.*—

JOBS	PROTECTIVE DEVICES
Cleaning (indoors) Degreasing (indoors)	(1) Mist respirator. (2) Chemical cartridge respirator.

11.6 *Asphyxiating atmospheres.*—

PROTECTIVE DEVICES
(1) Nose mask.
(2) Oxygen-breathing mask.
(3) All-service mask.

11.7 *Air supply for air-line masks of all kinds.*—Air at a comfortable temperature and free from odors and excessive moisture sometimes is difficult to furnish, especially for outdoor jobs in winter. Air quality and temperature shall be tested by the Safety Department and shall meet the suggestions of the American Standard Safety Code for air-supplied respirators (sec. 10.3a).

H-12. Sterilization of Respirators.

12.1 Each worker who needs a respirator should be assigned his own respirator. Where this is not done, it is important that the respirator be sterilized in addition to being cleaned. Adequate sterilization may be accomplished by—

a. Washing the rubber and metal parts with soap, a brush and warm water, after which the respirator is sterilized by immersion for 10 minutes in a solution of formalin made by placing one part of 40 percent formaldehyde solution into nine parts of water.

b. Washing the rubber and metal parts with soap and warm water, after which the respirator is sterilized by dipping in a 3 percent solution of carbolic acid, a 2 percent solution of lysol, or a 70 percent solution of denatured alcohol.

c. Subjecting the respirator to sterilization by a moist atmosphere of antiseptic gas, preferably formaldehyde, for a period of ten minutes at room temperature.

d. After following any one of the outlined procedures, the respirator should be rinsed with water and hung up to dry. The respirator should not be used until it has been dried thoroughly.

e. The filters, felt screens, and elastic headbands should be removed, if detachable, before washing or sterilization of the respirator, unless it is evident that washing and sterilization will not harm these parts.

12.2 The National Safety Council has issued an Industrial Data Sheet No. D–Gen. 16, "Cleaning and Sterilizing Goggles and Respiratory Equipment."

H–13. A Guide for Prevention of Industrial Disease in Shipyards.

13.1 Eight common types of disease and methods for their prevention are given in the following sections. Help in applying these methods will be given by the local Safety Department and by safety and medical consultants of the Navy Department and the Maritime Commission.

13.2 *Flashburns and foreign bodies in the eye.—*

a. Effects on workers: "Flash" is a surface eye burn resulting from even momentary unprotected exposure to the welding arc. In this condition the eye is painful and sensitive, especially to light. An eye flash shall be treated only by the doctor or by methods he has prescribed.

b. Foreign bodies in the eye shall be removed only under the doctor's orders or by methods he has prescribed. Like flashburns, they are preventable.

c. For safe practice:

All workers:

1. Whenever near welding areas wear antiflash goggles which have been approved by the Safety Department.
2. Wear safety goggles when grinding, chipping, buffing, scratch-brushing, or forging.

Welders:

3. Wear approved antiflash goggles even when helmet is being worn.
4. Use portable screens to protect the eyes of fellow workers.

13.3 *Lead poisoning.—*

a. Sources: In general, any job in which dust, fume, or smoke from any substance containing lead is breathed daily.

b. For example:

JOB:	WHEN MATERIAL IS:
Welding	Metal, coated with paint containing lead.
Cutting	
Burning	Lead.
Shrinking	Lead pigments.
Grinding	
Buffing	
Spray painting	
Mixing paint pigments	

c. Job can be done safely with:

1. (a) Special ventilation: Use a local exhaust hood approximately 8 inches from the job and drawing at least 200 c. f. m. into the hood with filtration of the discharge, or discharge, to a place where the contaminated air will not be breathed, or
   (b) Wearing of fume respirators, or
   (c) Wearing of supplied air respirator.
2. Periodic medical examination which includes blood and urinalyses.

13.4 *Solvent vapors.—*

a. Sources: In general, any job in which solvent vapors are breathed. For example:

Spray painting.
Painting.
Using paint remover.
Applying cements.
Paint brush and spray gun cleaning.

b. Job can be safely done with:

1. Segregation of such work, and
2. (a) Special ventilation as may be required.
   (b) Provision of spray booths with exhaust system.

(c) Wearing of special respirators:
- (1) For spray painting: Supplied air respirators or air line hoods.
- (2) For other jobs: Chemical cartridge respirators.

(See H–10 on respiratory protective equipment.)

13.5 *Zinc fume fever (zinc chills or shakes).*—

a. Sources: In general, any job in which the fumes from heated zinc are breathed. For example:

JOB:	WHEN MATERIAL IS:
Welding	Galvanized metal
Cutting	Zinc
Shrinking	Zinc alloy
Pouring zinc alloys	Brass

b. Job can be safely done with:

1. Special ventilation: Local exhaust hoses or hoods located close enough to operation at all times to remove smoke completely.
2. Wearing of special respirators.

NOTE.—There are no known cumulative effects from zinc chills.

13.6 *Fiberglas.*—

a. Effects on workers: Men working with Fiberglas may develop a dermatitis or conjunctivitis which are skin and eye conditions. It is best to transfer to another job those who continue to be sensitive.

1. Both experimental and practical evidence show conclusively that the inhalation of Fiberglas causes no lung damage.
2. The cement used with Fiberglas may contain a toxic solvent such as carbon tetrachloride (CCl_4) which can cause severe illness or even death if the cement is used indoors with inadequate ventilation.

b. For safe practice:

1. Clothing: Supply loose coveralls with collars and sleeves buttoned over cheesecloth.
2. Goggles: Should be worn.
3. Shower: Should be taken rather than bath, at end of shift.

Respirators are usually not necessary, *but* if a cement containing a toxic solvent is used, proper protection either by ventilation or by a respirator must be supplied and used.

13.7 *Asbestosis.*—

a. Sources: In general, any job in which asbestos dust is breathed. For example:

JOB:	WHEN MATERIAL IS:
Handling.	Asbestos
Sawing.	Asbestos mixtures.
Cutting.	
Molding.	
Welding rod salvage.	

b. Job can be done safely with:

1. Segregation of dusty work and,
2. (a) Special ventilation: Hoods enclosing the working process and having linear air velocities at all openings of 100 feet per minute, or
   (b) Wearing of special respirators.
3. Periodic medical examination.

13.8 Silicosis.—

a. Sources: In general, any job in which the dust of free silica (sand) is breathed daily. For example:

JOB
Sand-blasting
Sand packing of pipes
Shot blasting of castings

b. Job can be done safely with:

1. Isolation of dusty process and, in addition,
2. Special ventilation: In the case of sand-blasting, the work should be done in the standard type of sand blast room, cabinet, or machine.
3. Special respirator for dust-containing free silica.
4. Periodic examination by doctor.

13.9 Dermatitis.—

a. Sources: Excessive or improper use of cleaning agents such as gasoline. It is not at all uncommon to find dermititis caused by excessive use of common soaps such as those used in laundering. Cutting oils, certain greases, certain insulating materials used on electric cables and conduits can cause dermatitis.

b. Job can be done safely with:

1. Precautions against excessive use of the causative agent.
2. Advice of the medical department in the use of protective salves and creams.

H-14. Ventilation Standards.

14.1 Ventilation is required to control temperature and to remove air impurities, as from welding and paint spraying.

14.2 The maintenance of proper working conditions shall be the responsibility of the safety department, whose staff shall work in close cooperation with the welding, paint, and electrical departments. Air analyses and tests shall be made by the safety and medical consultants of the Navy Department and the Maritime Commission as may be needed.

14.3 Personnel of Department.—

a. Number:

1. The size of the ventilation crew will vary with the type of ship, equipment available, etc. The head of the safety department will be responsible for the organization of the safety department or division.
2. There shall be a ventilation supervisor on each shift responsible to the head of the safety department. Under the supervisor there shall be a sufficient crew to inspect and maintain good working conditions.
3. An EC-2 ship shall have at least one ventilation man aboard. Larger ships, or ships like carriers with considerable galvanized welding, shall have at least two ventilation men.
4. The number of ventilation men on the night shifts shall be in proportion to the construction crews.
5. The ventilation crew must have available a maintenance and repair crew of sufficient size to keep equipment on the job and operating efficiently. Long waits during which equipment is idle must be avoided.

b. Training:

1. The ventilation supervisor (that is, the safety engineer) shall be trained to handle the entire ventilation program in the yard. Local educational institutions, State Industrial Hygiene Units, Maritime Commission engineers, and other sources are available to give this training.
2. The ventilation supervisor shall organize classes, demonstrations, and short talks on standard procedures for ventilating specific spaces on the ships.

14.4 *Type of equipment needed.*—In ship construction, two types of ventilation are used—local exhaust as for removal of welding fumes at the point of origin, and general ventilation to supply fresh air to confined working spaces.

a. Local exhaust:

1. A common length for a local exhaust hose is forty feet. In ordering exhaust fans for use with local exhaust hoses, the following specifications should be met: Capable of drawing a minimum of 200 c. f. m. through each of 3-inch (or 4-inch) diameter flexible hose. Fans should have provisions for attaching three or more local exhaust hoses per unit.
2. In the interests of power economy, it is undesirable to move much more than 200 c. f. m. through each local exhaust hose.

b. General ventilation:

1. It is frequently desirable to introduce air into large working spaces such as deep tanks, fore- or after-peaks. This is done in many yards by using a flexible fabric duct, with metal elbows, and a fan of about 5,000 c. f. m. capacity.
2. It is desirable sometimes to supply a quantity of fresh air into the double bottom. Here a 2,000 c. f. m. unit may be used.
3. These two examples represent the two extremes of this type of work, and therefore are the two extremes in fan sizes. Fan static pressures in each case should exceed four inches of water.
4. For general ventilation of a ship engineroom during construction, a 10,000 c. f. m. blower is recommended. On the other hand, operations in confined quarters where heat is generated (plate shrinking, for example) may use a small portable fan to circulate the air. For this purpose, small blowers of from 800 to 1,500 c. f. m. shall be provided.

c. Ventilating procedures:

1. Local exhaust shall be used whenever a welding operation is being conducted in a confined space, or whenever galvanized metal is being welded. Local exhaust is always a suction process. Never blow a stream of air upon a welding arc.
2. Many welders think that it is enough to hold the end of the suction hose in the same compartment with the welding operation. This is not so. In order to capture the welding fumes, the end of the hose must be within six or eight inches of the arc, assuming a 200 c. f. m. volume per hose. Beyond this distance, the suction hose is ineffective.
3. The air supply to a general ventilation fan must be fresh outside air. Recirculation of air already contaminated shall not be permitted. A minimum of 400 c. f. m. per welder shall be supplied to a given working space such as a deep tank when general ventilation is used alone.

4. In warm weather, air movements or drafts are helpful, while in cold weather a minimum of air movement is desired and local exhaust will serve best. In temperate weather, it is most satisfactory to use a combination of local exhaust and general ventilation.

14.5 *Coordination of department with construction program.*—

a. The ventilation supervisor shall keep abreast of construction, and thus anticipate the ventilation needs.

b. The construction foremen shall inform the ventilation department of ventilation needs before the needs occur.

c. Blackboards, boxes, signal lights, or similar devices shall be installed on board and used to inform the ventilation department of immediate needs.

14.6 *Supplementary ventilating procedures.*—

a. Ventilating confined spaces, such as the fore- or after-peaks and deep tanks, is greatly simplified by the temporary removal or cutting through of certain plates.

b. For example, the fore-peak of a Liberty ship can best be ventilated by cutting a combination access and ventilation hole through the watertight bulkhead near the ship's bottom.

c. The tank top can be left off of the midship deep tanks until all welding has been completed in this space.

d. A side plate can be left or cut out of the engineroom at the bottom deck level.

MINIMUM REQUIREMENTS FOR SAFETY

S-2. Managements Part.

2.1 It is absolutely essential, if a successful accident-prevention program is to be installed and operated, that top plant management take an active and interested part in the work. The same supervision given any other important activity in the shipyard shall be given the safety program.

2.2 The responsibility of management insofar as industrial safety is concerned shall be considered to include—

2.21 The provision of a safe working environment.

2.22 Training of employees for safety.

2.23 Establishment of an accident record and reporting system which will definitely tie into nationally uniform reporting, record, and statistical requirements.

2.24 The appointment, where necessary, of a safety engineer (or a safety director) and staff to install, maintain, and properly supervise an accident-prevention program.

2.25 The issuance of instructions to all division or department heads, foremen, leaders, leadingmen and to any persons in supervisory capacity, that they are considered responsible for preventing accidents which involve employees working under their direction and requiring them to comply with all of the provisions of the accident prevention program in effect in the shipyard.

2.26 An active and interested participation in safety through—

(a) Review of, and executive action on, safety records.

(b) Regular attendance at safety meetings.

(c) Action upon good or bad departmental safety records through personal interviews with department heads.

(d) General letters, for bulletin board posting, addressed to employees and discussions of good or bad yard accident record.

(e) By setting a good example. (Goggles, safety shoes, hard hats and other necessary protective equipment shall be used by any executive who exposes himself to yard operations.)

S-3. Safety Director and Staff.

3.1 A full-time safety director (title may be safety engineer or safety inspector, etc.) and staff shall be appointed for all shipyards. (See Section 3.25 for duties and responsibilities.) The safety director shall report to, and be responsible to, the highest ranking managerial executive or his designated representative.

3.2 The staff in the safety department in addition to the safety director, shall consist of:

3.21 An assistant safety director in yards having 3,000 employees or more except that there shall always be at least one safety engineer per shift.

3.22 One safety engineer (safety inspector) for each additional 1,500 employees. Example: If a yard has 35,000 employees there would be required a safety director and an assistant plus 21 safety inspectors.

3.23 The staff of engineers shall be distributed over the three shifts in proportion to the number of employees on each shift.

3.24 One clerk and/or stenographer for the first 5,000 employees and one clerk for each additional 7,500 employees. (It is not to be assumed that the time of safety inspectors or the safety director can be spent on clerical detail. All office functions, while adequately supervised by the safety director, should be carried on by clerks so the greatest possible amount of time of the safety director and his staff may be spent in the shipyard.)

3.25 The duties and responsibilities of the safety director shall include:

(a) Complete responsibility for formulating, administering and making necessary changes in the shipyard accident prevention programs within the limits of authority granted by the shipyard management. The safety director shall also be required to correlate the shipyard accident program with the minimum safety and health standards of the United States Navy Department and Maritime Commission.

(b) Submission of regular monthly, weekly or daily reports on the status of safety directly to the general manager or his designated representative.

(c) Acting in an advisory capacity on *all* matters pertaining to safety to the management, general manager, superintendents, foremen, quartermen, leadermen, purchasing department, engineering department, commissary department, or contractors.

(d) Maintenance of the accident record system, making all necessary reports, personal investigation of all fatal or serious accidents, investigation through his staff of all accidents, securing supervisor's accident reports, checking corrective action taken by supervisors to eliminate accident causes.

(e) Supervising, or closely cooperating with the training supervisor in the safety training of all employees. (See Section 6.26.)

(f) Correlating safety work with medical department to insure proper selection and placement of employees.

(g) Making personal inspections and supervising inspections by staff and by special employee committees, for the purpose of *discovering and correcting unsafe conditions or unsafe work practices BEFORE THEY CAUSE ACCIDENTS.*

(h) Exchanging information with other shipyards on best safety methods and consulting with United

States Navy Department and Maritime Commission Regional Safety Consultants on safety problems which cannot be solved with methods or information at hand.

(i) Making certain that all federal, state or local laws, ordinances or orders bearing on industrial safety are complied with.

(j) Securing any necessary help or advice from the state labor departments on matters pertaining to safety and health.

(k) Initiating activities that will stimulate and maintain the interest of employees in safety.

(l) Acting as secretary of all safety committees and in such capacity he shall prepare an agenda for each such meeting covering the business to be discussed and, he shall prepare for the record, minutes of each such meeting.

(m) Directing the activities of his staff including the assistant safety director, so that the shipyard accident prevention program will be efficiently operated. It is expected that the safety director may delegate certain responsibilities to his staff engineers, such as that of acting as secretary of certain of the safety committees. Permission for such delegation of authority is expressly given in the interest of efficiency and for training the safety staff.

(n) Submission of the required reports on the status of safety in the shipyard to the interested government agencies at the time and intervals hereinafter requested.

S-4. Accident Prevention Forms and Reports.

4.1 The safety director shall cause to be designed and put into use at least the following forms and records:

4.11 *Supervisor's report of accident.—*

(a) Giving all vital data on case plus statements as to unsafe act and/or unsafe condition, reason unsafe act or condition was permitted to exist or occur, and the immediate corrective action taken or recommended. (See Form 1.)

4.12 *Safety engineer's recommendation form.—*

(a) Form used by safety staff to record recommendations made during inspection. Used for follow-up. Made in triplicate; one to leader-

Budget Bureau No. 62-R005-42
Approval expires January 31, 1944

U. S. MARITIME COMMISSION — U. S. NAVY
PRIVATE SHIPYARDS
SUPERVISOR'S REPORT OF ACCIDENT OR OCCUPATIONAL DISEASE

Fill out for every disabling injury (or case of occupational disease) whether or not compensable. Answer every question fully. Use other side if necessary. To be mailed with the Monthly Injury Summary (for the month covered in that report) by the 15th of the following month to the Division of Industrial Injury Statistics, Bureau of Labor Statistics, Washington, D. C.

(1) Name of yard.. ....
(City) (State)

(2) Name of injured employee.. Badge No..

(3) Occupation .... Department ....

(4) Date of accident.. Hour of day..
a.m. p.m.

(5) Witnesses: Name.. Badge No..
" .... " " ....

(6) Describe accident or case fully (what injured was doing, what happened, etc.)..................
....

(7) What unsafe condition caused accident or occupational disease? (Specify: broken ladder, defective staging, lack of ventilating equipment, etc.)
....

(8) What was done wrong (unsafely) that caused accident or occupational disease? (Specify: failure to wear provided goggles, overloading crane, using mushroomed chisel, failure to use respiratory protective equipment, etc.)
....

(9) Describe resulting injury or occupational disease. (Specify: lacerated hand, broken left leg, right thumb amputated, lead poisoning, etc.)
....

(10) What have you done to prevent similar occurrences? ....

(11) What do you recommend to prevent similar occurrences? ....

(12) Signed by:.............................. Title:.............................. Date:..............................

Checked by:..

DO NOT USE

Serial No..............................
Code date..............................
Region..............................
Location..............................
Occupation..............................
Dept..............................
Injury date..............................
Time of day..............................
Agency..............................
Agency part..............................
Uns. mech. cond..............................
....
Acc. type..............................
Uns. act..............................
Uns. pers. fact..............................
....
Injury..............................
Body part..............................

FORM 1. (See paragraph S. 4.11–a.)

SAFETY ENGINEERS RECOMMENDATION FORM

BLANK SHIPBUILDING COMPANY

To:____________________ Location ________________

Date_____________ Time_________________

An inspection of operations under your supervision revealed the following unsafe practices and/or conditions:

NOTE: (Unsafe acts or conditions to be described here and numbered. Badge numbers or names of men involved may be listed.)

Above conditions or practices last observed (1)_______ (2)_______ (3)_______

Corrected at once?______ If not, when will corrective action be taken?__________

Signed________________________
Safety Department

Date checked__________________ Signed________________________
Safety Department

(Used only if condition is not corrected at once.)

No. 000

NOTES:

(1) Size, approximately 3" x 5"

(2) To be made out in triplicate (See 4.12)

(3) Form need not be filled out if condition is corrected at once unless unsafe act or condition is a repetition or a flagrant violation of safety rules is involved.

(4) If check shows existence of same unsafe act or condition the matter should be referred in writing, to the proper executive for action.

FORM 2. (See paragraph S. 4.12–a.)

man or quarterman on job, one to general manager, or other designated executive, one to safety department files after use to check performance. (See Form 2.)

4.13 *United States Navy Department and Maritime Commission monthly injury summary.*—

(a) To be submitted monthly to United States Navy-Maritime Commission. (See Form 3 attached.) To include over-all breakdown of predominant accidents, types and causes, accident frequency, total number of fatal cases, total of lost-time cases and the time lost, etc. *This form to be used also for report to management of shipyard.* To be submitted in triplicate as required on form. (See Form 3.)

(b) The following formula shall be used in determining accident frequency rates for shipyards:

1. Accident Frequency=

$$\frac{\text{Number Disabling Injuries} \times 1{,}000{,}000}{\text{Total Man-Hours Worked for Period Covered}}$$

2. A disabling injury shall be considered to be any injury which results in a man being unable to report for work on the next regular day or shift after the accident, or one which calls for a standard time charge being made regardless of whether time is actually lost. If time is lost due to the injury, subsequent to the initial return to work, then the injury shall be accounted as disabling.

4.14 *Minutes of safety committee meetings.*—

(a) Minutes of meetings should show date and time of meeting, names of those present, action on unfinished business, brief description of new business discussed and action taken or ordered by the committee on each item. The discussion should always include the predominating accident hazards of the yard and the means suggested to control them.

(b) Various committee forms will be made available to shipyards on request.

4.17 These forms and any others pertaining to industrial safety or health shall be filed and made available to authorized

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U. S. MARITIME COMMISSION — U. S. NAVY
PRIVATE SHIPYARDS

INJURY SUMMARY FOR MONTH OF__________________, 19____

Three copies to be submitted by the 15th of the succeeding month; one copy, together with the Supervisor's Report of Accidents for each injury reported during the month, to the Division of Industrial Injury Statistics, U. S. Bureau of Labor Statistics, Washington, D. C.; one copy to the Chief Safety Consultant, U. S. Maritime Commission, Washington, D. C.; and one copy to the Regional Safety Consultant, U. S. Maritime Commission, in the region in which the shipyard is located.

---

1. Name of company..
2. Location of shipyards.......................(City).......................(State)

EXPOSURE DATA

3. Average number of employees.............................. (Includes clerical employees and executives.)   4. Total employee-hours worked during month..............................

INJURY DATA Disabling injuries	Number		Days Lost	
	Occurred during month (a)	Of greater severity than formerly reported (b)	For injuries during month (c)	For injuries formerly reported (d)
5. Fatalities				X X X
6. Permanent impairments				
7. Temporary total				
8. TOTAL		X X X		
9. Non-disabling injuries		X X X	X X X	X X X

10. Frequency rate.............................. $\frac{\text{Total number of disabling injuries (item 8)} \times 1{,}000{,}000}{\text{Total employee-hours worked (item 4)}}$

11. Yearly frequency rate to date..............................

Comments: ....
....
....
....

Report made out by:.............................. Title:.............................. Date:..............................

INSTRUCTIONS

1. A disabling injury is one which results in death, permanent impairment (through amputation or loss of use of any body part), or time loss beyond the day or shift on which the injury occurred.

2. Show in column (a) [of Injury Data] the total number of injuries which occurred during the month, and in column (b) the number of injuries which were determined to be more severe than formerly reported. For instance, show as a fatality an injury formerly reported as a permanent impairment if the injury resulted in death during the month covered by this report, and explain briefly under "Comments."

3. In column (c) show the actual days lost during the month because of injuries which occurred during the current month. In column (d) show the number of days lost during the current month because of injuries which were reported in previous month. Do not use A.S.A. time charges for deaths or permanent impairments. For fatalities show the number of days intervening between the day of injury and death (i.e., if death occurs on the day of injury show no time lost). For permanent impairments show the number of days during which the injured person was unable to work.

(Over)

FORM 3–Front. (See paragraph S. 4.13–a.)

ACCIDENT CAUSE ANALYSIS FOR THE MONTH

Unsafe condition or practice (If more than one item applies, give preference to the one appearing first on the list)	Disabling injuries		
	Total		Resulting in infection during the month
	This month	Year to date	
a. Lack of goggles or screens — eye injuries only			
1. No impact goggles			
2. No anti-flash goggles under hood			
3. No welding screens			
4. No welder's hood			
5. Other (specify)			
b. Improper method of handling material			
1. Lifting with bent back, poor grip, etc			
2. Insufficient help in lifting			
3. Failure to use crane, hoist, etc			
4. Failure to wear safety shoes			
5. Failure to wear gloves			
6. Other (describe)			
c. Poor housekeeping resulting in falls			
1. Unguarded hatches, holes, pits, etc			
2. Defective ladders, staging, etc			
3. Unsafe use of ladders, staging			
4. Poor housekeeping generally			
5. Other (specify)			
d. Poor housekeeping — all other injuries			
1. Poor layout			
2. Poor housekeeping generally			
3. Other (specify)			
e. Improper condition or use of hand tools			
1. Unsafe condition of hammers			
2. Unsafe use of hammers			
3. Defective chisels — hand and air			
4. Unsafe use of chisels — hand and air			
5. Other (specify)			
f. Improper condition or use of welding and cutting tools (except eye injuries)			
1. Lack of ventilating equipment			
2. Improper use of ventilating equipment			
3. Defective cables of electric welding equipment			
4. Defective electric welding equipment			
5. Improper use of electric welding equipment			
6. Defective gas welding or cutting equipment			
7. Improper use of gas welding or cutting equipment			
8. Other (specify)			
g. Improper placing or piling causing falling objects			
1. Placing insecurely on staging			
2. Placing insecurely on stockpiles			
3. Other (specify)			
h. Defective or unsafe use of machinery			
1. Unguarded power presses			
2. Unguarded or defective abrasive wheels			
3. No goggles or shield when using abrasive wheels			
4. Failure to adjust rest — abrasive wheels			
5. Defective or unguarded shears, rolls, brakes			
6. Other (specify, as overhead cranes, etc.)			
i. Defective or unsafe use of cranes and hoisting equipment			
1. Defective slings			
2. Defective pads, rings, clamps			
3. Unsafe hooking or rigging of load			
4. Standing under or near suspended load			
5. Other (specify)			
j. Improper protection against spray painting			
k. Improper protection against sand blasting			
l. All others			

representatives of the United States Navy-Maritime Commission upon request.

S-5. Safety Committees.

5.1 The safety director, in cooperation with the shipyard general manager, shall cause to be formed and put into effective operation at least the following safety committees.

5.11 *Central safety committee.—*

(a) Membership: management representative (chairman), safety director (secretary), all superintendents, foremen, medical department representative, quartermen or leadermen, and one employee.

(b) Membership of all but management representative, medical department representative and safety director may be rotated—terms of 2 months each but rotation to be arranged so only ½ of committee changes each month.

(c) Meetings: Shall be monthly or more often as necessary.

(d) Duties: This is the policy forming committee for safety work. They review the monthly report as submitted to the United States Navy-Maritime Commission and other records to determine the course of safety work for coming period. They decide such matters as type of safety equipment to be used and how it shall be made available to men, types of safety training to be used, whether accident prevention plan is being adherred to, interplant contest awards, etc. Such committees shall review the investigation on fatal or serious accidents and make recommendations. All Committee members are expected to make practical suggestions to improve shipyard safety. They also review reports of other committees to make certain suggestions and recommendations are properly followed through.

(e) Secretary: The safety director shall act as secretary, prepare an agenda, take minutes, prepare a report of committee meeting, and distribute copies of reports to members. He shall follow through with other committees, the suggestions and recommendations of the central safety committee.

5.12 *Supervisors' safety committee.—*

(a) Membership: Management representative, safety director, medical department representative, superintendents, foremen, quartermen, and leadermen. This is a rotating committee; rotation should be arranged so all of the supervisory staff serve in their respective periods, i. e., superintendents change each four months, foremen each two months, quartermen and leadermen each month. In no case should an entire group change at one time. Where a department or unit of a department has an unusually poor record then the responsible supervisory staff—superintendent, foremen, quartermen or leadermen should be retained on the committee until their record is at least equal to the shipyard average.

(b) Meetings: Shall be monthly or semimonthly or more frequently, as necessary.

(c) Duties: The primary purpose of this committee is the stimulation and maintenance of interest and the education of its members in accident prevention. The shipyard accident record shall be reviewed, the predominant types of accidents and the predominant causes of these accidents shall be discussed. Suggestions and recommendations to improve the records are solicited from each member. At least one timely subject must be discussed at each meeting; i. e., such as eye injuries and their prevention, electric shocks, hand tool accidents, etc. Methods of avoiding accidents due to these operations should be presented by the committee members.

(d) The committee shall review reports of all fatal and serious accidents and suggest preventive action. It shall review reports of inspection committees and check on the quality of the suggested corrective action for unsafe conditions or practices reported.

(e) The committee shall carry out the suggestions and recommendations of the central committee.

(f) Outside speakers such as safety engineers, insurance men, State Department of Labor men or men from other shipyards, may be used from time to time to stimulate interest of committee members in accident-prevention work. Sound film strips, motion pictures or other similar media on safety subjects can and should be used if available and practicable.

(g) Secretary: Same as for central safety committee.

5.13 *Regular inspection committees.—*

(a) Number: One committee for each department and each hull.

(b) Inspection: Weekly or more often as necessary.

(c) Membership: At least two employees and a supervisory employee of each job being inspected. The safety director or staff safety engineer should accompany the committee.

(d) Duties: To inspect their department or hull for the purpose of discovering and having corrected unsafe acts and unsafe conditions likely to cause accidents. On each section of a job they should be accompanied by a responsible supervisory employee. They are observers only—the foremen, quartermen or leadermen shall do all corrective work. Where a condition is discovered on which there is disagreement the superintendent shall make the necessary decision. *Hazards immediately dangerous to health, life or limb shall be corrected by the accompanying supervisor at once.*

(e) The committee shall submit written reports to the safety director and indicate whether accident-producing conditions or practices have been corrected. These reports shall be referred to the supervisory safety committee by the safety director. If necessary because of dangerous conditions, he may refer them at once to the general manager.

5.14 *Special inspection committees.—*

(a) Staging inspectors, electrical inspectors, crane inspectors, boiler inspectors, and others.

(b) Membership: Specially qualified individuals or teams permanently assigned to work. (See paragraph 5.15c.)

(c) Duties:

1. Staging inspectors: Daily or continuous inspections of all stages shall be made on each

hull—or other locations where stages are used. Report shall be made of all defects to the responsible supervisor for immediate correction. Copy of the daily report shall be submitted to the safety director.

2. Crane inspectors: Weekly inspections shall be made of all cranes and rigging. Reports shall be submitted to proper department heads for correction of unsafe conditions or practices. Copies of reports on defects shall be made to the safety director.
3. Other inspectors: As above and at indicated frequency.

5.15 *Safety committees—General.—*

(a) Committees in addition to those specified in these standards, may be formed and operated if desired.

(b) Representatives on all committees, when of a supervisory status, should be appointed by the shipyard general manager and held responsible by him for active and interested participation in the work of the committee. Employee representation may be secured in the same manner, or by appointment of employee committees, union shop stewards or by election of union members or by any other feasible means.

(c) The services of production employees having related duties may be taken advantage of on inspection committees. Stage erectors or repair men may serve as permanent and continuous staging inspectors, a man or men from the ventilation crew may be utilized for checking on ventilation practices. The reports of state or insurance inspectors will be considered adequate on boilers, air compressors and receivers or on other pressure vessels.

S-6. Employee Safety Training.

6.1 The time for the safety training of an employee to start is at the inception of his employment. After a physical examination, which should be made to make certain that the employee is physically capable of performing safely the work he is requesting, the man shall have explained to him the safety policy of the company by a representative of the safety department. This may be done individually, in general groups or in craft groups and the instruction may be supplemented by printed instructions in the form of rule books or instruction cards.

6.2 Employees shall have in their possession, and be instructed in the proper use of, all necessary personal protective equipment before being started on any job.

6.3 General safety rule books, craft safety rule books or safety instruction cards should be supplied employees. Such books should be concise but complete enough to furnish written record of all important safety rules. *No rule shall be included which will not be strictly enforced.* The assistance of United States Navy-Maritime Commission safety engineers will be given in the preparation of such rule books if desired.

6.4 All employees shall be instructed in their specific duties by their immediate supervisor and they shall be made familiar with the hazards of the job and instructed carefully in how to avoid them. It shall further be the duty of the supervisor to constantly check all employees so unsafe working practices may be corrected before accidents occur.

6.5 Safety instruction shall be correlated with all apprentice and craft training schools. Safety instruction in such schools or training courses shall include an explanation and demonstration of the need for the safety equipment or safe practices specified and the strict enforcement of all safety requirements in the classes. The instructors shall, by their own example, impress upon the learners the importance of the safety requirements.

6.6 Safety bulletin boards shall be located at each hull and shop, and at such other locations where they may be desirable, on which safety posters, letters or bulletins from the shipyard management or safety department and other safety material may be posted.

6.61 The bulletin boards shall be located where the majority of the employees at a particular location will see them.

6.62 The bulletin boards shall be well constructed, have a locked glass cover and shall be lighted at night.

6.63 Safety posters and other material on bulletin boards shall be changed at least semimonthly or more often. (Posters will be made available by the United States Navy-Maritime Commission for the use of shipyards. However, posters may be selected by the shipyard safety department from any source.)

6.7 Where shipyard house organs (magazines or newspapers) are established, the safety director shall arrange to have a reasonable proportion of the space devoted to safety (articles, items and cartoon cuts relating to safety will be made available by United States Navy-Maritime Commission safety consultants.)

6.8 Sound-film strips and motion pictures on safety subjects should be used where practicable. Public address systems, where installed, may be used for safety messages to shipyard employees especially during lunch hours or at shift changes.

S-7. Safety Supply Store.

7.1 A safety supply store shall be established in each shipyard where safety shoes, safety hats, protective impact goggles and filter-lens welding goggles shall be made available to shipyard workers. Shoes may be sold at or near cost to employees, but safety hats and impact and filter-lens goggles shall be issued to each employee but shall remain the property of the company to be returned when the employee ends his employment. Equipment such as work clothes, gloves, welders helmets, may also be stocked and sold to employees if desired.

7.11 Goggles may be stocked in the central tool room or first-aid department but should be fitted as described in paragraph 7.2 following.

7.2 The attendant of the safety store should be skilled in fitting safety shoes, and if goggles are also issued, he should be trained in proper fitting and servicing of goggles.

S-8. Goggles.

8.1 Impact-resisting goggles of a type suitable for the particular job and also of a type meeting the requirements of the United States Bureau of Standards, shall be worn by every employee exposed to the hazard of eye injuries. Practically every employee in the shipyard, with the exception of those working inside offices at all times are either directly exposed to eye injury from the work they do, or indirectly through working near operations which are likely to produce flying objects. (See paragraph H-10.3a, page 4.)

8.2 Except where *temporary* lack of goggles make it impossible, each employee shall have his own pair of goggles. If it is necessary to reissue goggles to different employees, *the goggles must be sterilized after each use.*

8.3 Goggles supplied employees should be carefully fitted to their face to prevent irritation and to prevent the entrance of foreign objects around the edges. (See paragraph 7.2.)

8.4 All employees working in proximity to arc-welding operations shall be required to wear anti "flash" goggles, of at least No. 2-5 shade (or equivalent), of a type meeting the requirements of the United States Bureau of Standards. (See section 9.1 on welding for additional eye protection for welders.)

8.5 Welding screens constructed of wood, metal or other suitable material shall be used to protect the eyes of workers in proximity to electrical welding operations, whenever their use is practicable.

S-9. Welding—Arc.

9.1 All welders shall be made familiar with the hazards of their work and instructed in safe methods of performing the various types of jobs to which they are assigned.

9.2 Personal protection equipment used by welders shall include:

9.21 Welders' protective hood provided with the proper shade of filter type lens for protection against the harmful rays of the arc and a clear cover glass to protect the filter lens.

(a) The shades or their equivalent recommended are:

Up to 30 amperes—No. 6–7 Shade.
30 to 75 amperes—No. 8 Shade.
75 to 200 amperes—No. 10 Shade.
200 to 400 amperes—No. 12 Shade.
Over 400 amperes—No. 14 Shade.

(b) Shades may also be selected from the following table:

Rod diameter	*Welding glass shade No.*
1/16	10
3/32	10
1/8	10
5/32	10
3/16	12
7/32	12
1/4	12
5/16	14
3/8	14

(c) The welder's hood should be inspected at least weekly to detect possible light leaks, cracked protective glass, or badly fouled or missing cover glasses. Any defects discovered shall be corrected at once.

9.22 Protective leather welders' jacket, long-sleeved wool shirt with buttoned collar and leather welders' glooves and safety hat.

(a) It has been found satisfactory in the hot summer months to substitute flameproofed cotton shirts. If this is done, the flameproofing, which must must be reapplied after each washing, should be done under the direction of the shipyard. This entails that laundering also be done by the company. Commercial laundries are rapidly undertaking this type of work.

9.23 Hardened and filter lens protective goggles with sideshields to be worn under the hood for protection against harmful rays where the hood is raised and for protection against flying scale and chips. The goggles should be of a type meeting the requirements of the United States Bureau of Standards and of at least No. 2-4 shade or equivalent.

9.24 Safety shoes or pull-on boots with cord or leather soles and heels.

9.3 Welding screens (constructed of flameproofed fabric on wood or metal frames, metal on metal frames, or plywood sheets joined by rings) of a size sufficient to protect men working nearby from the harmful effects of the electric arc rays shall be used on all electric welding operations when practicable.

9.31 A type found very successful by one large company can be economically constructed of ¼″ to ⅞″ plywood. Two pieces about 18″ x 30″ are joined at two points along one edge with 2″ x ⅛″ rings. The large size of the rings allows the two pieces to lap sufficiently to make a lightproof joint, while the light weight of the assembled screen makes men more prone to use them.

9.4 Welding leads shall be inspected at least once each shift, and those found defective shall be repaired or replaced.

9.5 All welding leads should be coiled back to centrally located stations after the completion of each shift or job.

9.6 Welding rod tips should not be thrown on decks or stages but should be retained by the welder and turned in at the end of the day for salvage.

9.7 Each electric welder shall make an inspection of the area below him, and of the opposite sides of bulkheads on which he is working, to make certain that there is no danger of falling or penetrating sparks causing a fire. He and his helper must know the location of fire extinguishing equipment and how to use it. It is recommended that a fire extinguisher be available in the immediate area.

9.8 The safety of women welders presents several special problems which should be carefully considered while women are being trained and during their first several weeks on the job.

9.81 Women will at first be subject to excessive fatigue because they are unaccustomed to shipyard work. In their enthusiasm they are likely to overdo and will, under such conditions, be more prone to accidents and at the least, absences may follow. They should, until they become accustomed to the work, be carefully watched by supervisors and if signs of fatigue are evident they should temporarily be given lighter work.

9.82 Work clothing for women is still in the development stage. In general, however, the following should be observed:

(a) Safety shoes or pull-on boots with cord or leather soles and heels.

(b) Long underwear, union suit type (wool for winter) khaki trousers and shirt, or coverall type of overall with a drop seat and welders' leather uniform.

(c) It is desirable that the outer clothing, unless of wool, be flameproofed.

(d) Leather gloves.

9.83 Whenever possible, mechanical means of handling material should be utilized in preference to manual handling.

S-10. Burners.

10.1 Equipment for burners shall be the same as that for welders except that the leather clothing and welders' helmets need not be worn. Filter type lens protective glasses with side shields. No. 3-8 shades or their equivalent should be worn. Flameproofed clothing is desirable.

10.2 All individual oxygen and acetylene and other gas lines shall be turned off at the manifold at lunch hour and at quitting time or if the burner must leave the immediate vicinity of his work during the regular shift.

10.3 All hose should be coiled up to the manifold when shifts are changed or when jobs are completed.

10.4 The practice of dusting the clothes by blowing oxygen on them or using oxygen for ventilating or cooling purposes has resulted in several fatalities and *shall be absolutely forbidden.* Oxygen shall be used only in connection with burning or welding operations.

10.5 Each burner shall make an inspection of the area below him, and of the opposite sides of bulkheads on which he is working, to make certain that there is no danger of falling sparks causing a fire. He and his helper should know the location of fire-extinguishing equipment and how to use it. It is recommended that a fire extinguisher be available in the immediate area.

10.6 Burners' uniforms (overalls) shall be laundered at least weekly except that if oil or grease is spilled on the clothing, it shall be changed at once. It is desirable that arrangements be made by the company to have uniforms (overalls) laundered and flameproofed.

10.7 Defective burning equipment such as torch, hose or cylinder pressure regulators (where cylinders are used), shall be repaired immediately.

10.8 All oxygen and acetylene (gas) lines shall be inspected at least once each shift and those found defective shall be repaired or replaced.

10.9 Standard color coding for oxygen and acetylene pipe lines shall be observed for oxygen and acetylene. (Since it may be impossible to secure colored hose during the war, identification may be made by any practicable means so long as every burner and burner's helper or any other person who has occasion to use oxygen-acetylene (gas) equipment is thoroughly familiar with it.)

S-11. Cranes (Whirleys, Hammerheads, Bridge, etc.)

11.1 The safe loads as specified for cranes on single lift shall not be exceeded.

a. For the guidance of crane operators, weights of all sections over 5 tons shall be plainly marked on the section in figures at least 12 inches high.

11.2 On double lifts, cranes shall not be loaded to more than 75% of their combined rated capacities.

11.3 All crane operators shall be given a thorough physical examination upon employment and at at least yearly intervals thereafter. Particular attention should be given to the eye examination.

11.4. Crane inspectors. (See section S. 5.14.)

11.5 All whirley and hammerhead cranes shall be provided with bumper guards of ¾″ wire rope or equivalent set from 32 to 36 inches from the ground, and fastened in the form of a half loop to all four wheel covers at the leading and trailing ends of the crane.

11.6 All traveling cranes regardless of the type shall be equipped with a clearly audible automatically operated signal which will indicate that the crane is in motion. A siren or electric horn pitched to a tone above or below the general noise level of operations is preferable to a gong or bell.

11.7 The crane operator shall take signals only from the designated hook tenders or riggers and no others. Hook tenders shall be identified by special hats or arm bands.

11.8 All loads shall be lifted or lowered under power.

11.9 Employees shall not be permitted to pass between the leading and trailing trucks of whirley cranes AT ANY TIME.

a. Wheel covers shall be provided which will protect all wheels of whirley, gantry, hammerhead and bridge cranes to a distance of ½ inch from the crane tracks.

11.10 Employees shall not remain under, or pass under crane loads.

11.11 Trolley lines for cranes shall be protected against accidental contact by men or material, by wood or other suitable sheathing, or if the trolley lines are elevated they shall have a vertical clearance of at least 12 feet above the ground.

a. Bumper guards for trolley ends of bridge cranes should be provided to prevent the hoisting cables from swinging into the trolley wires.

11.12 The crane operator shall be required to immediately notify a designated department head of any defects he notices in the crane or its equipment.

11.13 No person other than the crane operator, a trainee, the supervisor in charge of cranes, the crane inspector, repairmen on crane repair jobs or safety department men shall be permitted in crane cabs. No more than three persons shall be in the cab at any time.

a. Whenever possible, crane operators should be relieved on the ground and not in the crane cab.

11.14 Except under emergency conditions and then only with the approval of the safety department, men shall not ride loads. Men shall never be permitted to ride empty hooks or slings.

11.15 A clearance of at least 2 feet and preferably more shall be maintained between the crane and any stationary object or materials. Where existing structures make this clearance impossible, an exception to this rule may be granted by the United States Navy-Maritime Commission Safety Consultant after an inspection.

11.16 Strong-backs or spreaders should be used on all lifts where there is danger of the load buckling or where the spread is so wide slings or clamps may slip. Steel strong-backs are preferable to wood.

11.17 The hook tenders shall familiarize themselves with the weights of the various plates, shapes and sections handled, so chain or cable slings of the proper size will be used on lifts.

11.18 All chain and cable slings and strongbacks should be clearly marked, by color coding, to indicate the maximum safe load for which they are to be used.

11.19 All electric cranes should be equipped with limit switches to prevent double blocking.

11.20 Storage racks shall be provided for all chain and cable slings at points convenient to the operations so they may be safely stored when not in use. All chain and cable slings shall be inspected before each use by the hook tender and if found defective, shall be sent to the proper department for repair. Such inspections shall be in addition to, not substitutes for, the regular inspections by the safety department.

S-12. Plant Housekeeping.

12.1 Housekeeping shall be maintained at a high standard in all parts of the shipyard at all times. The following rules shall (or should, as indicated) be put into effect:

a. Wide, well-defined roads, aisles, and passages shall be laid out in the yard and shops and they shall be kept clear of obstructions and shall be kept clean and free from debris. The width of aisles and passages in some of the older yards may be limited because of existing structures, but an effort should be made to maintain a width of twice that of the widest hand or power truck, plus two feet.

12.12 Aisles and passages should be defined by white or yellow lines painted on the floors. Materials or machines should not be permitted to encroach on these lines into the aisle.

12.13 All staging platforms, ramps, stairways, walkways, or other walkway surfaces on shipways shall be kept clean of all debris such as welding rod tips, bolts, nuts, and similar material. Welding leads, burner hose and air hose should be elevated over or placed under the walkway surfaces or protected by cross-over planks. They should be neatly arranged and not left in coils or loops where they may cause men to trip and fall.

12.14 All deck areas on hulls shall be kept free of debris and construction material shall be neatly piled so as not to present a hazard to employees. (See par. S. 12.13 on hose, etc.)

12.15 All deck openings shall, as soon as practicable, be protected with guardrails at least 42 inches in height set 12″ back from the edge of the opening. Manholes may be guarded by tacking three uprights to the deck and then tacking a ring of the proper diameter to the top of the uprights. Hatches, without coamings, may be guarded by tacking uprights to the deck at intervals of not more than 10 feet and fastening 2″ x 6″ or 2″ x 8″ timber rails in place at 42″ from the deck. Midrails set 21″ from the deck may be used also, and are especially recommended where women are employed.

(a) Where they are projecting stud bolts around the manholes or tank tops, they should be protected with either metal strips or wood covering to prevent slips and falls or snagging of clothing of workers.

12.16 All snow and ice shall be cleaned from stagings and platforms (by turning the planks), and from decks, before men on regular production are permitted to work on them.

12.17 Free access shall be maintained at all times to all exists and to all fire-alarm boxes or fire-extinguishing equipment.

12.18 All oils, paints, thinners, solvents, waste, rags, or other flammable substances shall be stored and used strictly in accordance with the requirements of the National Fire Protection Association standards.

12.19 All staging lumber, or other lumber, when dismantled shall have all nails or spikes removed or bent over.

12.20 Plates and shapes shall be stored either in substantial metal or heavy timber racks or stored flat on a substantial timber or concrete foundation that will prevent shifting.

(a) Plates and shapes shall be stored so there is at least an 8-foot clearance from the center line of railroad tracks.

12.21 Angle brackets and similar small pieces shall be stored in racks.

S-13. Lighting.

13.1 A level of illumination should be maintained for the various type of jobs in all shops, at least as high as that recommended by the standards of the Illuminating Engineering Society.

Minimum Standards of illumination for certain industrial interiors as recommended by the Illuminating Engineering Society are as follows:

Type of Work	*Minimum operating foot-candles—measured on the work*
Assembly:	
Rough	10
Medium	20
Construction—Indoor:	
General	10
Forge shops and welding	10
Foundries:	
Charging floor, tumbling, cleaning, pouring and shaking out	5
Rough molding and core making	10
Fine molding and core making	20
Machine shops:	
Rough bench and machine work	10
Medium bench and machine work, ordinary automatic machines, rough grinding, medium buffing and polishing	20
Paint shops:	
Dipping, simple spraying, firing	10
Rubbing, ordinary hand painting and finishing; art, stencil and special spraying	20
Power plants, engine rooms, boilers:	
Boilers, coal and ash handling, storage battery rooms	5
Auxiliary equipment, oil switches and transformers	10
Engines, generators, blowers, compressors	15
Receiving and shipping	10
Sheet metal works:	
Miscellaneous machines, ordinary bench work	15
Punches, presses, shears, stamps, welders, spinning, medium bench work	20

Type of work	Minimum operating foot-candles—measured on the work
Steel and iron manufacturing:	
Billet, blooming, sheet bar, skelp and slabbing mills	5
Boiler room, powerhouse, foundry and furnace rooms	5
Cold strip, pipe, rail, rod, tube, universal plate and wire drawing	10
Repair shops:	
Rough bench and machine work	10
Medium bench and machine work	20
Blacksmith shop	10
Carpenter and pattern shop	20
Storage	2
Store and stock rooms:	
Rough bulky material	5
Medium or fine material requiring care	10
Structural steel fabrication	10
Woodworking:	
Rough sawing and bench work	10
Sizing, planing, rough sanding, medium machine and bench work, gluing, veneering, cooperage	20

13.2 All lights should be provided with reflectors suitable for the type of work being done and meeting the requirements of wartime dim-out regulations. A regular schedule of cleaning and maintenance should be instituted that will keep the lighting units at their original efficiency.

S-14. Hand Tools.

14.1 All tool rooms issuing hand tools such as hammers, sledges, chisels, spud wrenches, center punches, portable air-driven tools, portable electric tools and other tools should be inspected daily by a safety engineer to make certain that only tools in good condition are being issued. Tools in poor condition shall not be issued.

14.2 Workers' personal tool kits should be inspected at monthly intervals so defective tools may be discovered and repaired.

S-15. Handling Material (Manual).

15.1 All employees should be instructed in the proper method of lifting. No limit can be set as to the maximum weight to be lifted by one man, but it should be made clear to all employees that they should secure help if the load is too heavy or too bulky for one man to handle easily. Mechanical equipment should always be used when it is available and its use is practicable.

15.11 Posters illustrating the proper method of lifting should be displayed frequently and men observed lifting incorrectly should be reinstructed by their supervisor.

S-16. Machine Guarding.

16.1 All belts, pulleys, gears, chains, sprockets or other dangerous moving parts of machines shall be completely enclosed with guards constructed of angle-iron brackets covered with heavy sheet metal or ½-inch wire mesh. Vertical or inclined belts shall be guarded to a height of 6 feet above the floor. Horizontal belts over 8 feet above the floor may be guarded only on the under side. Gears, chains and sprockets should be guarded no matter where located.

16.11 Since metal may not be available for guards at present, substantially constructed wood guards will be acceptable.

16.12 In all cases where state requirements are more stringent than those given above, the state rulings must be followed.

16.2 All machines shall be guarded at the point of operation so employees will not be injured while operating the machine.

16.21 The standards of guarding for the various machines as recommended by the Insurance Rating Bureau should be followed except where state requirements are more stringent when the latter will take precedence.

S-17. Staging and Ladders.

17.1 United States Navy—Maritime Standards of Construction for shipyard staging is in the process of development and will replace the present recommended practice when published.

17.2 All staging, scaffolding, platforms and walkways shall be constructed in accordance with the requirements of the California State Industrial Commission except where existing state codes are more stringent in which case the latter shall take precedence.

17.3 All ladders should conform to the American Standard Safety Code on ladders.

○

When Trainee and Instructor are
Both Safety Conscious the Accident Rate is Reduced

★★★

SAFETY
For The Woman Trainee

★★★

War Production Training Division
State Department of Education
Montpelier, Vermont

Sent by [illegible]
[illegible]

WOMEN HAVE DOUBLE DUTY NOW

Your health must be preserved; your morale kept high and your contribution to war production unfailing.

These three obligations are war's demands on the women of America.

The National Committee for the Conservation of Manpower in War Industry and the United States Department of Education through its war production training schools recognize their common purpose in supervising safety practices among trainees and in improving safe methods of operation in our war production training program.

Personal Protection:

Wear proper hair covering, a cap with 2" or 3" visor for all machine operators.

Goggles must be worn on all operations where flying chips, sparks, rays or dust are present.

Face shields are desirable protection.

Respirators must be worn as protection from dangerous fumes and gases.

Safe Clothing:

One or two-piece slack suit, bib overalls or coveralls and short or rolled sleeves, (no loose belts, no cuffs on slacks, no patch pockets). Slacks should fit close at ankle.

Approved leggings, shoes, gloves, aprons, sleeves, and helmets must be worn by welders.

Shoes:

Closed toe, low heel and heavy sole. Never wear shoes without socks or stockings. Certain jobs call for "safety toe" shoes.

Jewelry:

No wrist watches, rings, neck chains or bracelets should be worn. They get caught in moving parts or come in contact with charged electric conductors.

Safe Work Habits:

Most machines are equipped with proper guards. However, **always keep clear of moving parts.**

No running in aisles or on stairs.

Be on time at your work station.

Pay close attention to your foreman's instructions.

Never leave your machine while it is running.

Keep good housekeeping habits at your station.

Learn to use correctly small hand tools — files, hammers, screw drivers.

Asking your foreman's help is a safe work habit.

Use of Safe Tools:

Do not use files without handles.

Use right size wrenches and screw drivers.

Watch out for split or splintered handles on small tools, mushroom heads on chisels and hammers, wrenches that are spread, and screw driver blades in bad condition.

Reporting Accidents to your Foreman:

Always report any accident immediately.

Always go to the first aid room for minor as well as major injuries.

Always answer questions about your own or neighbor's injury thoughtfully, concisely and conscientiously.

Safety Cooperation:

Be interested in your own and your neighbors' safety.

Accept responsibility for your share in your school or shop safety program.

Attend first aid classes in your community if possible.

School Sanitation and Personal Hygiene:

Schools and shops provide adequate and suitable toilet facilities. Do your part in keeping them orderly.

Let no careless act of yours endanger your health or that of another worker.

If you have not had a pre-employment physical examination and any unusual physical condition bothers you at this new type of work, see the doctor. Tell him what you are doing, and **take his advice.**

Do not lift heavy pieces without first learning how. Ask your foreman to show you; get help.

Wash hands often and renew protective cream on hands and arms. It will save scratches which may later become infected.

Do not attempt to remove anything from your own or another worker's eye.

Proper eating, adequate rest and recreation guard your health. Keep fit.

General Information:

Learn the safe way to do your job.

Never start a machine you do not understand.

Never remove guards. They are placed on the machines for your protection.

Floors wet with soapy water or oil are hazardous. Rubber soles and heels are very dangerous on wet floors. Do not wear them.

Do not visit around other stations. It distracts some workers.

Do not advise another worker about her job. Suggest she call the foreman.

Do not stand on box or bench or other makeshifts for a ladder or step.

Do not fool with compressed air.

It is very dangerous to pile material above a safe height.

Oily waste, scraps and waste paper should be kept in bins for the purpose. If left loose around benches they indicate fire hazard.

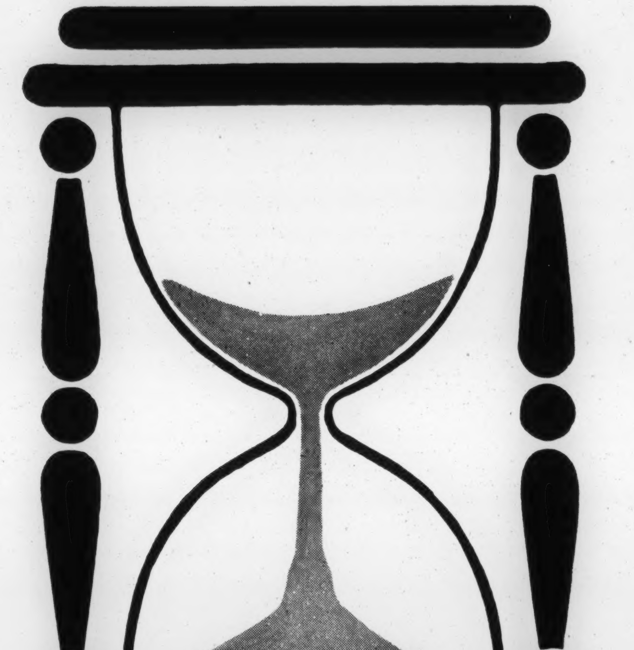
WOMEN AT WAR

This booklet is for your information and your safety. Every manhour lost due to accident is loss of materials for which the armed forces are waiting.

THE SAFE WAY IS THE ONLY WAY TO DO THE JOB

Cooperate with the State Department of Education and your instructors by making the war production schools of Vermont examples of safe, alert, and efficient training.

EVERY MINUTE COUNTS



A Modern "Refresher" on Menstruation to Help You Reduce ABSENTEEISM

ABSENTEEISM AMONG WOMEN

THE loss of time during "difficult" days for any one woman amounts to very little. Yet, this petty time loss repeated month after month among hundreds and thousands of women mounts to a major headache in industry these days when every minute counts.

This is the way one industrial nurse defines the problem among women at work:

> "We are an essential industry employing between four and five hundred women. As everywhere, absenteeism is becoming a big problem in our organization. We have found that the greatest number of absences are among women who are frequently away from work *from one to three days due to menstrual discomfort.* What can you do to help these women?"

Before we answered this letter, we went into war plants. We talked to nurses and personnel directors. You can guess what we discovered.

Some women stay at home from one to three days.

Others remain on the job, but do not work at top speed.

Each month some women take "time out" to lie down in the infirmary—lose a half hour or more from work.

Most women seek relief from the pain or ache of the moment but don't know the importance of adequate rest, regular elimination, proper diet, etc., to prevent these conditions.

All whom we called on agreed . . . It's high time that women in industry learn fundamentals about menstruation.

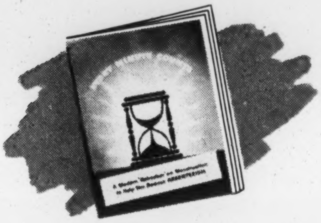
Much of the discomfort and some of the lagging is unnecessary.

An Answer to the Problem

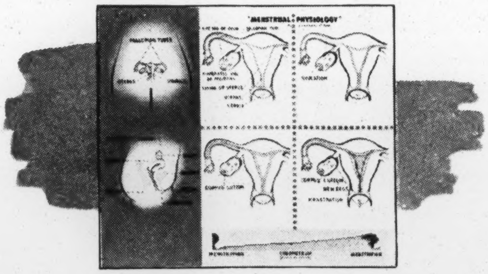
A complete program on menstrual education, designed particularly for industry, is ready. Each unit of the program has been checked by nurses and they pronounce it practical. Here is our three-point plan:

that day is here again

1. Most important—a booklet for each woman worker—"That Day is Here Again." It will help women to understand themselves. The style is lively—fast, down-to-earth reading. Ask for the number of copies you need for distribution in your plant. They are free.



2. This manual or "refresher" that you are now reading. Nurses asked for it so they would have a quick review of the facts right at their finger tips when women ask questions or when they assemble women for a talk.



3. "Menstrual Physiology"—jumbo charts, 22″ by 25″, reproduced in miniature on following pages. These clear, diagrammatic drawings will save paragraphs of verbal explanation when you answer questions or give a talk.

Using the Program

Nurses not only approved the program but decided how they would use it. Naturally, their ideas differed because of the conditions that exist in individual plants.

One group said: "Give the booklet, 'That Day is Here Again,' only to those girls who actually have trouble—lose time from work."

Another group, confident of interest in the subject, advised: "Assemble all the women, give a talk, explain the charts and distribute the booklets."

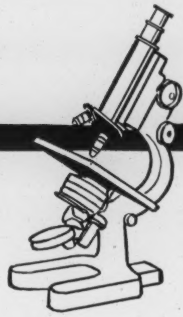
One nurse explained: "I can't suggest directly to our women that they read 'That Day is Here Again,' good as I think it would be for them. They might think I had something up my sleeve—as I would have. So, I shall put a notice on the bulletin board that will read something like this:

> 'I have just read a booklet on menstruation that will interest all women. It amazed me because it makes this complicated subject so understandable. It's really good reading.
>
> 'Fortunately, I have been able to get some extra copies. I have a copy for any of you girls who will just say the word.
>
> 'I'll try to answer your questions, too, if you have any after you have read the booklet.' "

There is a great opportunity right now to impress women with the fact that menstruation is a normal function. Your job is more than that of binding up cut fingers. Management looks to you to help women make the adjustments that will enable them to be a smoothly operating part of the team that turns out production. It is our pleasure and privilege to lend some assistance as part of the war effort.

And Now . . . that quick review of up-to-date, authoritative information on menstruation. You'll find it on pages following.

THE ORGANS OF MENSTRUATION



The Organs

. . . involving reproduction and menstruation are located in the pelvis, the bony, basin-shaped cavity in the lower part of the body. The uterus or womb is positioned in the center. Opening from the upper part of the uterus on either side are two tubes called Fallopian tubes, named after Gabriello Fallopio, the first man to describe them. Near the terminus of each Fallopian tube is an ovary. The lower end of the uterus opens into the vagina, the birth canal which extends to the outside of the body.

A clear understanding of the processes that occur during a complete menstrual cycle is greatly facilitated if the basic fact is recognized that there is a continuous passageway from each ovary to the outside of the body—through a Fallopian tube into the uterus, out of the uterus into the vagina to the outside of the body.

The Uterus

. . . commonly called the womb, is a hollow, somewhat pear-shaped muscular organ about three inches long. It opens into the vagina at its lower, smaller extremity through a cylindrical projection called the cervix or neck of the uterus. The velvety lining of the uterus, the endometrium, is a mucous membrane similar to that which lines many body cavities such as the mouth and nose. However, the blood vessels and cells of the endometrium perform a unique function. Prior to menstruation they fill up with serous materials (watery fluids) and blood. During menstruation, these blood vessels and cells break down, discharging the accumulated fluid and part of the lining itself.

u'ter-us
en-do-me'tri-um
va-gi'na

Fal-lo'pi-an
o'va-ry
cer'vix

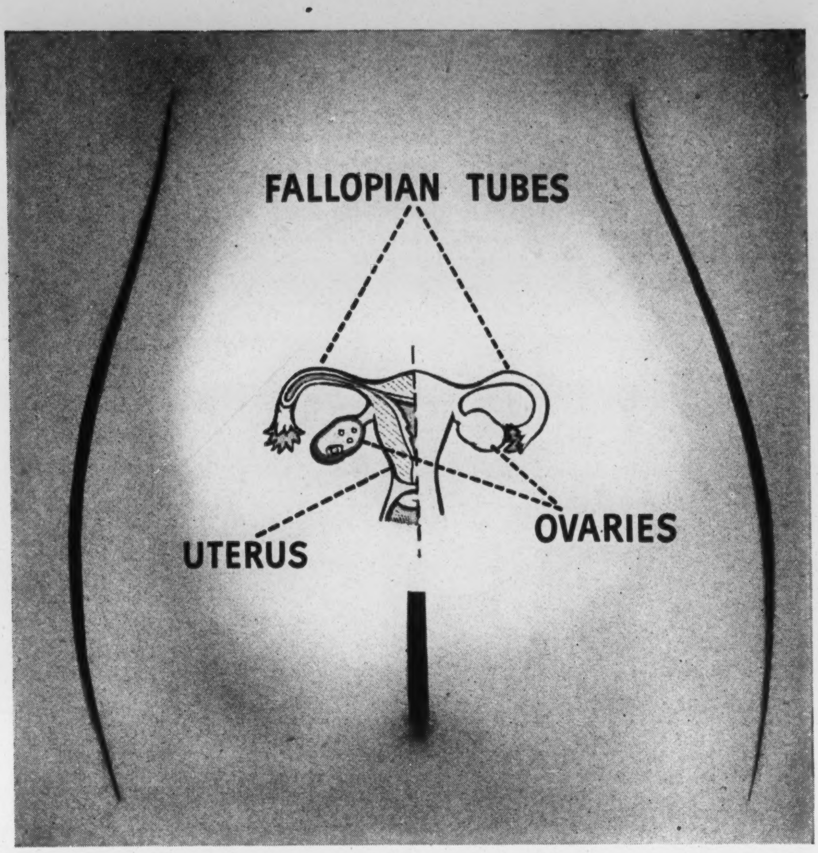
The Fallopian Tubes

. . . these canals are longitudinal in position and about 4¾ inches in length. Their diameter is about that of a pipe stem in the center and narrow toward the end near the uterus where they will admit no more than a bristle. In structure, the Fallopian tubes are muscular, continually expanding and contracting.

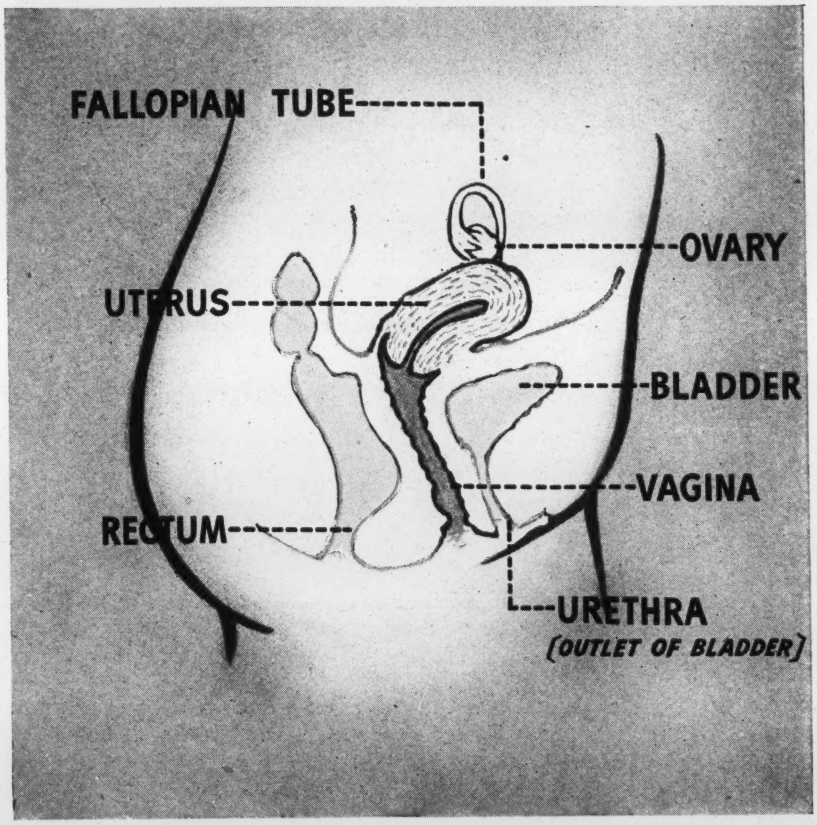
The Ovaries

. . . there are two ovaries, and each of them is about the size of an unshelled almond. The ovaries contain the sex cells or ova in the female. Each ovum, microscopic in size, is surrounded by a minute sac called a follicle.

fol'li-cle
o'vum
o'va

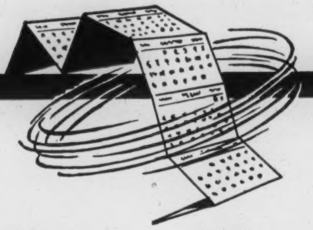

FALLOPIAN TUBES
UTERUS
OVARIES

FRONT VIEW


FALLOPIAN TUBE
OVARY
UTERUS
BLADDER
VAGINA
RECTUM
URETHRA
(OUTLET OF BLADDER)

SIDE VIEW

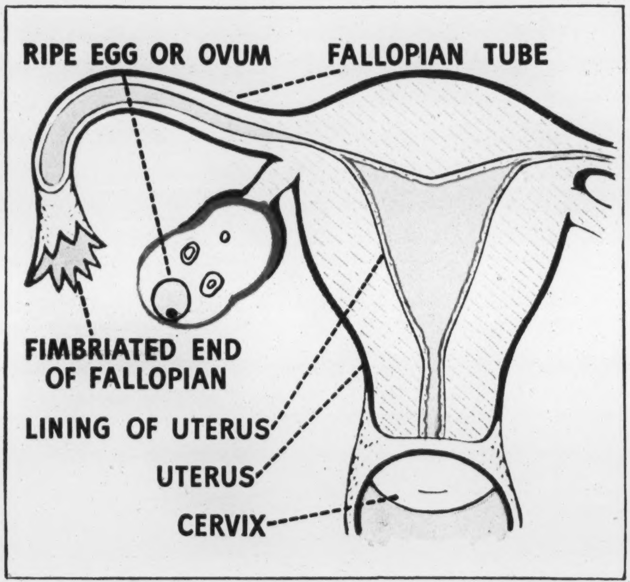
AROUND THE CALENDAR



MENSTRUATION is the one visible manifestation of a natural though complicated process that goes on month after month, throughout each month, from puberty to menopause. It has already been explained that menstruation is really the breaking down of the endometrium, the lining of the uterus, which is built up between the end of one menstrual period and the beginning of the next menstrual period.

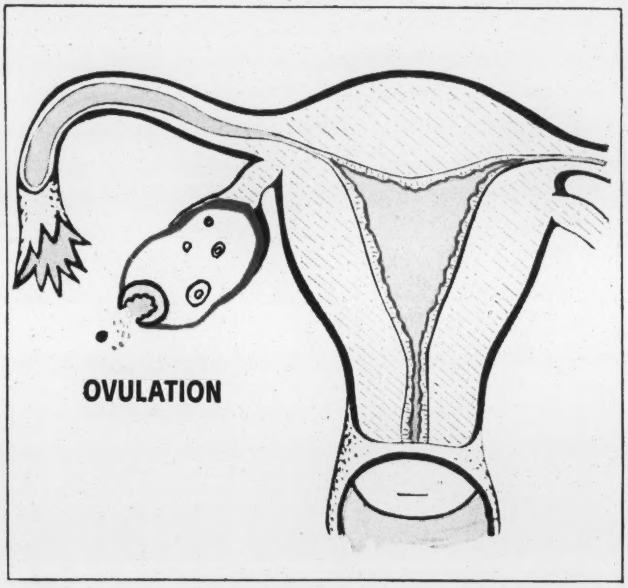
Concurrent with the building up of the endometrium, important changes take place in the ovary. At the beginning of a cycle, several ova start to mature. One outstrips the others in

o-vu-la'tion



The lining of the uterus is built up between the end of one menstrual period and the beginning of the next menstrual period. Gradually, this lining becomes thick with serous materials (watery fluids) and blood. The lining of the uterus is known as the *endometrium.*

The ovaries contain the ova or sex cells of the female. As the endometrium is built up each month, several ova start to mature. One grows faster than the others and attains its full growth about midway between menstrual periods.



The particular ova that outstrips the others in growth moves toward the wall of the ovary. There it bursts out of the egg case or follicle, and is expelled into the abdominal cavity. This issuing of the ripened ovum from the follicle is known as ovulation.

The fringe-like, or fimbriated end of the Fallopian tube draws the ripened egg from the abdominal cavity into the Fallopian tube by an expanding and contracting motion. Thus the ovum is slowly carried to the uterus.

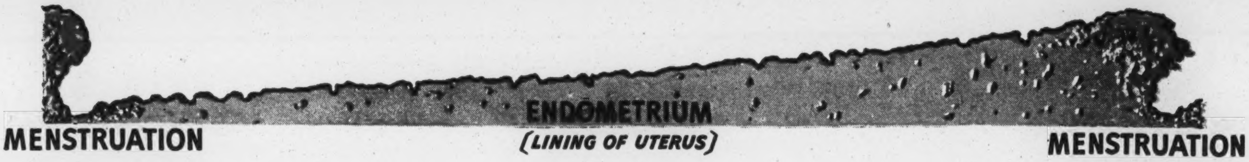
growth. Full growth of the dominant ovum is attained about the middle of the monthly cycle. It moves toward the wall of the ovary and bursts out of the egg case or follicle. This issuing of the ovum from the follicle is known as ovulation. The ovum then starts its leisurely journey through the Fallopian tube to the uterus. It is propelled along its way by the expanding and contracting motion of the tube, aided by cilia, or hairs, which project from the inner surface of the tube.

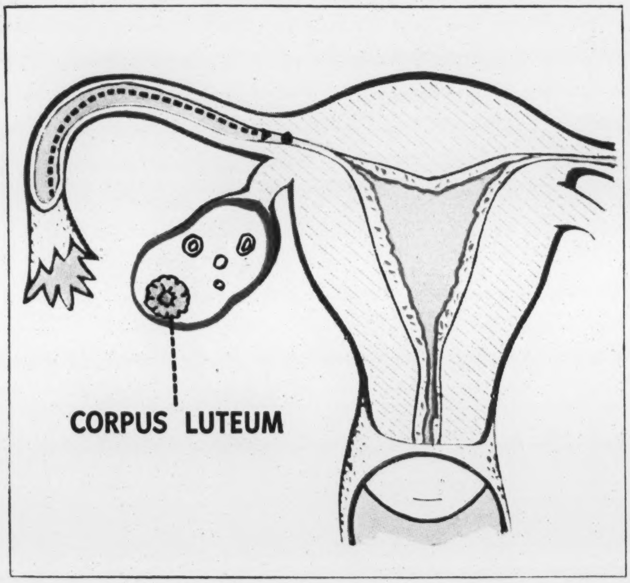
If fertilization (joining of male sperm and ovum) occurs during the time the ovum is passing through the Fallopian tube on its way to the uterus, pregnancy results. The fertilized ovum then becomes attached to the endometrium and there develops into a human being. It is upon the fluids of the endometrium that the embryo depends for nourishment during the early stages of pregnancy. If the ovum is not fertilized, there is no need for the carefully prepared endometrium to continue to grow so it breaks down into what results in the menstrual flow.

Left in the ovary at the time of ovulation, is the follicle from which the dominant ovum has been extruded. This follicle, known as the Graafian follicle, starts its own period of growth, becomes yellow in color and is known as the corpus luteum. The corpus luteum develops until the time of menstruation when it gradually disappears. However, when the ovum is fertilized, the corpus luteum remains in the ovary during the first part of pregnancy and influences the functioning of the endometrium.

cil'i-a
em'bry-o

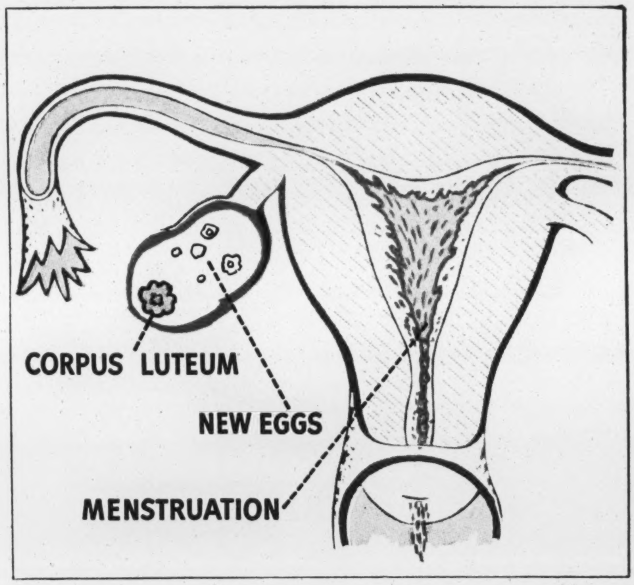
Graaf'i-an
cor'pus lu'te-um





The egg case, or Graafian follicle, left in the ovary at the time of ovulation, starts a growth of its own. It becomes yellow in color and is known as the corpus luteum. This corpus luteum produces a hormone which stimulates further growth of the endometrium between ovulation and menstruation.

While the corpus luteum is developing, the ripened ovum is journeying toward the uterus, through the Fallopian tube. The ovum is propelled by the expanding and contracting motion of the tube.

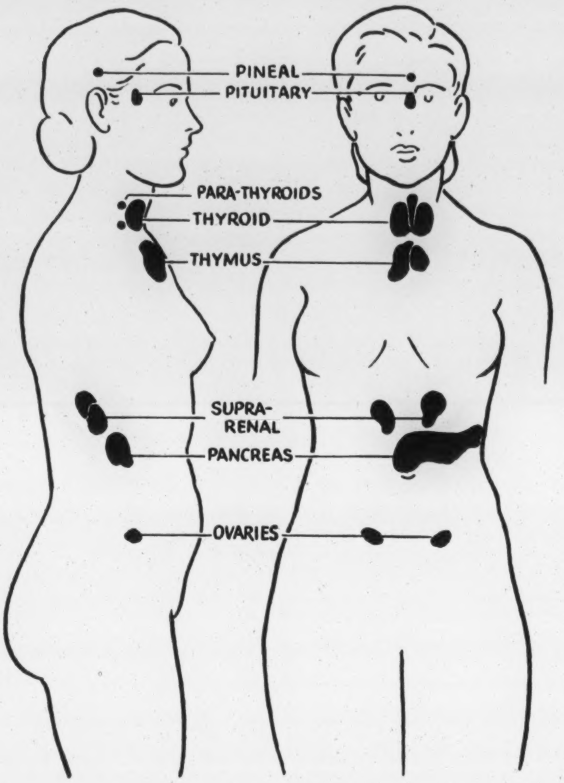


Menstruation is really the breaking down of the endometrium. It occurs about once every month.

Just as soon as one menstrual period is over, the endometrium again starts to build up. Ova mature. Ovulation occurs. The ripened ovum makes its journey through the Fallopian tube and finally the cycle ends in menstruation. This process is continuous, occurring month after month from the time a girl starts to menstruate until menopause, the time when menstruation gradually diminishes, finally ceases.

Chemical Messengers

These processes just described are all closely interrelated. They are synchronized and controlled by substances known as hormones or chemical messengers. These hormones, produced and secreted by various organs, influence, by remote control, other organs when they get into the blood stream.



The anterior portion of the pituitary gland, located at the base of the brain, produces hormones which play a vital part in the menstrual cycle. The hormones that it produces stimulate the growth of the follicles in the ovary. It is believed that the pituitary gland also stimulates the ovaries to secrete their own hormone which, in turn, causes the lining of the uterus to grow and develop during the menstrual cycle.

After ovulation the continued growth of the endometrium depends upon a hormone given off by the corpus luteum. When pregnancy occurs, the hormone of the corpus luteum continues to act upon the endometrium. In other words, the corpus luteum, the yellow body that is originally merely the egg case in which the ovum matures, has a hormone-producing function important not only to menstruation but also during pregnancy when it prevents the uterus from expelling the fertilized ovum.

Just to Review . . .

During the monthly cycle the lining of the uterus, the endometrium, is built up, becoming thick with watery fluids and blood. Until ovulation, the growth of the endometrium is stimulated by a hormone produced by the maturing ovum. After ovulation, a hormone from the corpus luteum assumes the function of continuing the endometrial growth. If fertilization occurs, the corpus luteum continues its influence on the endometrium especially during the first part of pregnancy. However, if fertilization fails to occur, the endometrium breaks down into the menstrual flow which is discharged from the uterus, through the cervix, and to the outside of the body by way of the vagina.

When a menstrual cycle begins, hormones from the anterior pituitary start the growth of ova in the ovary. At about the mid-way period in the cycle one ovum fully matures, makes its way to the outside of the ovary and breaks out of the egg case or follicle. From that point the matured ovum travels through the Fallopian tube to the uterus.

If fertilization occurs while the egg is in the tube, the fertilized egg proceeds to the endometrium where it embeds itself and is nourished. Lacking fertilization, the matured ovum disintegrates and is probably discharged with the menstrual flow, the corpus luteum gradually disappears and another monthly cycle begins.

hor'mone
pi-tu'i-ta-ry

THE QUESTIONS THEY ASK

"THAT Day is Here Again" takes care of a long list of the more common questions:

"Can I wash my hair?" . . . . Page 9
"Is it all right to take a bath?" . . . . Page 9
"Will a 'permanent' be successful if given during menstruation?" . . . . . . Page 9
"How frequently does menstruation come?" . . . . Page 5
"How long should it last?" . . . . Page 5
"What about tampons?" . . . . Page 21

There are questions, however, not included in the booklet that may come up. Here are some of them, with the answers:

The Question

Why is regular elimination necessary to comfortable menstruation?

The Answer

The charts — "Menstrual Psysiology" — help make this point very clear. In the pelvic cavity, the bladder lies in front of the uterus—the rectum behind. The position of the uterus may vary within the same individual, depending upon the distention of the bladder and rectum. Correct posture also makes an important contribution to comfortable menstruation.

The Question

Is it always necessary to change a tampon before or after urination or bowel evacuation?

The Answer

Refer to the charts—"Menstrual Physiology." There are three distinct canals in the lower part of the body —(1) the rectum, (2) the vagina, and (3) the urethra. A tampon positioned in the vagina has absolutely no contact with the excretions from the other two canals.

The Question

Do the ovaries operate alternately?

The Answer

In many cases they do. However, variations are frequent. It is true that when one ovary is removed a woman usually continues to menstruate each month, demonstrating the capacity of one ovary to operate regularly.

The Question

My daughter, 12, menstruated just twice. There has been no sign of it for three months. Is anything wrong?

The Answer

If she feels well, there is probably no cause to worry. Sometimes a regular pattern of menstruation is not established for as long as two years following puberty.

The Question

At what age should a girl be told about menstruation?

The Answer

Certainly, before her first period which, in the case of some girls comes before the age of 12. Write for the booklet, "As One Girl to Another," Box 3434, Chicago, Ill. It tells the story the way girls talk.

The Question

How much protection will a tampon provide?

The Answer

That depends upon the rate and amount of flow. Until you learn how much you can depend upon a tampon, wear Kotex with Fibs.

The Question

If Kotex is changed frequently and great care is used in bathing, why is it necessary to use a deodorant on a sanitary napkin?

The Answer

After the menstrual flow leaves the body, it breaks down and odor develops fairly quickly. Besides, the sweat glands are more active during menstruation than at other times.

The Question

What is the total blood loss during menstruation?

The Answer

This is difficult to figure. Medical authorities say that women lose less than they think they do. An average is one and a half to two ounces.

The Question

What conditions demand the attention of a doctor?

The Answer

Bleeding between periods.

Excessive bleeding.

Unusual increase or decrease in the amount of flow.

Cessation of flow over a prolonged period except in cases of pregnancy and at the menopause.

Abnormally severe cramps.

Marked irregularity in the frequency and duration of menstruation.

The Follow-Through Is Important

Take advantage now of this complete program on menstrual education for industry. You will find workers interested. For years women have wanted to know more about this subject.

FREE

✓ **"That Day Is Here Again," a booklet for individual women, available for distribution to all of the women in your plant.**

✓ **"Menstrual Physiology"—Jumbo charts, 25″ by 22″, yours for the asking. They illustrate the whole process of menstruation—clearly—diagrammatically.**

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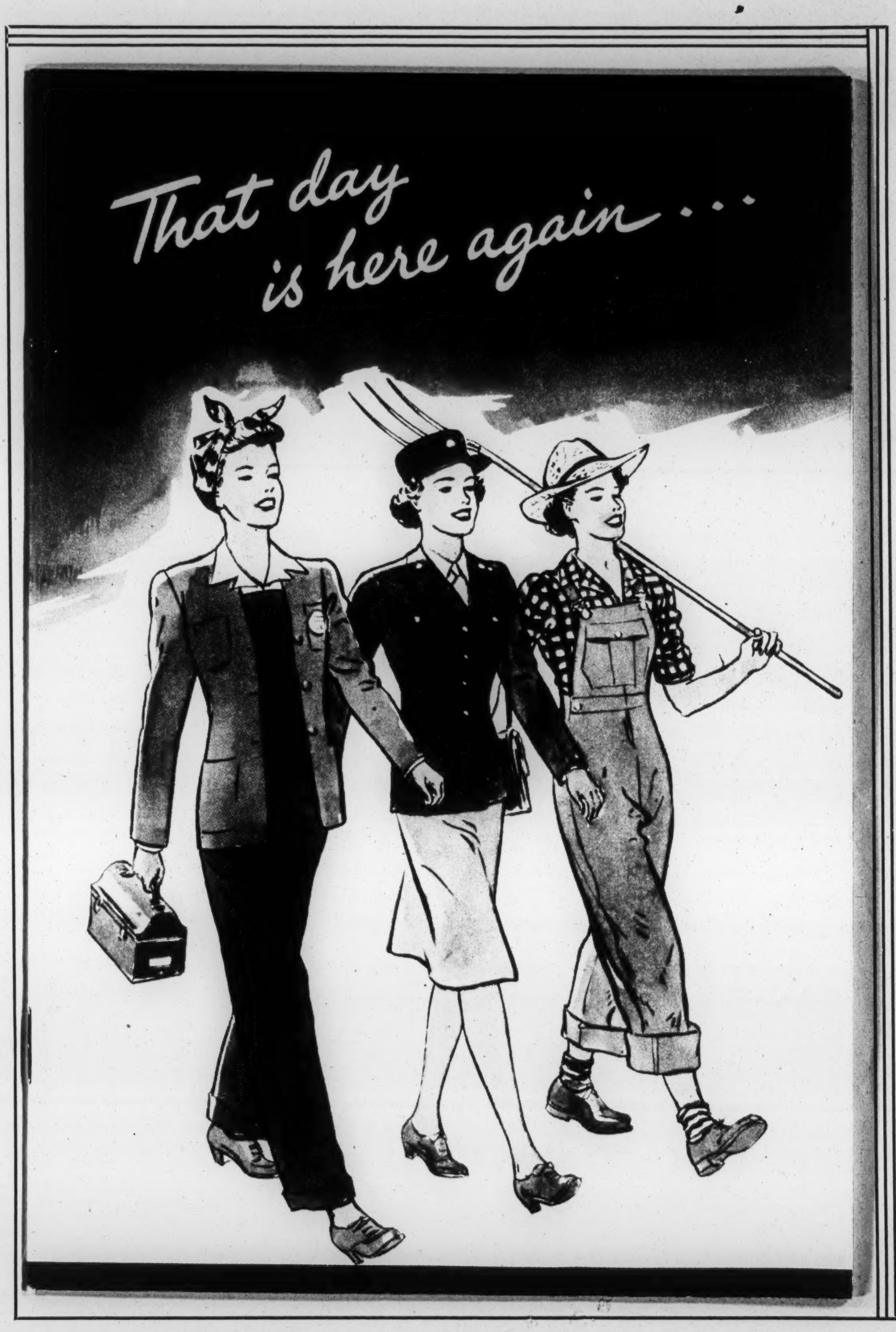
FOR WOMEN AT WORK


That day is here again . . .

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That day is her

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FOR WOMEN AT WORK

again!...

Answers for the Woman who asks: "How Can I Feel Better and Stay on the Job *Every* Day of the Month?"

Remember how it was, just a few short years ago—sit around the office, or somebody's bridge table, chattering over clothes and men . . . movies and permanents . . . Mrs. Hoosis's hat?

Seems like a lifetime since then, doesn't it? Since you traded dimity for denim; cocktail frocks for a Service uniform.

Because today, you're a different woman. So busy you can hardly call your soul your own. So *important* that a whole nation's counting on you—to say nothing of that certain Tall Lady With The Torch, standing out in New York harbor.

And now that you're doing a man's job, you're bound you'll see it through (so help you!). To prove to Johnny Doughboy that women "can take it." That *you're* a round-the-month soldier, too.

And then . . . often when you're busiest . . .

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"That" day is here agai

MAYBE you're wearing the khaki, blue, or green that
you've freed a man for Service.

Maybe your job is down on the farm. Running a tractor,
threshing machine. Could be you're driving a town taxi sin
Butch, the cabman, got his call.

Or, maybe you're helping to build a ship . . . to rivet a
bomber . . . or to make the bottles that Uncle Sam needs

medical prescriptions. All of them
supplies our boys are waiting for.

Whatever you're doing, you're do
okay! Until suddenly "that" day is
here . . . and you wonder how yo
can keep going; stay on the job a
you should and must. What's more
wonder about *you*. What makes yo
innards behave this way? And wha
a woman to do about it?

FOR WOMEN AT WORK

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Well, here are the answers to the "why's" and "how's" you've puzzled over since you outgrew pigtails. The scientific *facts* of menstruation (worlds different from the weird ideas you often hear when girl friends get together). Facts that even mother never told you, perhaps—because many mothers just didn't know!

When Grandma was a girl

FIRST, let's talk about grandma. Life wasn't easy in her young days. For one thing, she never knew the comfort of Kotex . . . (missed it by a generation or two!). Furthermore, people didn't understand that menstruation is a perfectly *normal* process. Oldsters believed that the monthly period was a sort of house-cleaning time for the body, when mysterious "poisons" were purged away.

And what wild notions grew out of this idea! Fears and superstitions we can laugh at today . . . but they were no light matter to grandma! The old wives frightened her with tales like these about a "menstruating woman":

If she drank milk, the cows were doomed.
If she entered a wine cellar, wine went sour.
Flowers would wither away at her touch . . . meat would spoil if she dared to salt it.
A look from her eye would kill a swarm of bees.
Clocks stopped during her period.

And this was only the half of it! For there was once the

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The Question

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The Answer

belief that a menstruating woman could tarnish a mirror with a single glance . . and bewitch the next person who looke into it. Then, there's the lady harpist who had to give up "harping", because always, at that time o the month, the strings of her harp would break . . . (honest!) and always the same strings!

All this sounds pretty funny, of course. Yet you yourself may hear superstitions that are really die-hards of former year For instance, some otherwise modern women talk about being "unwell," or having "the curse." Some are still afraid bathe or take a laxative during their periods. Others believe they shouldn't exercise. Or shampoo their hair.

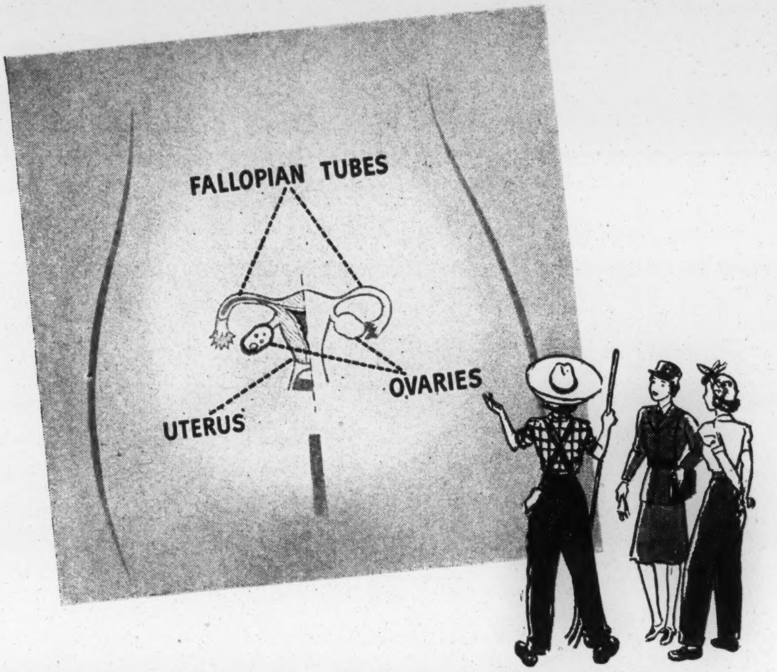
. . . but now we know

MODERN science tells us we can forget such old-fashione bugaboos! (And that's mighty welcome news—today, especiall when there's just no time for coddling ourselves!) Now we know that menstruation *isn't* a curse or illness at all. It's as natural as any other function of your body. Paying too muc attention to it makes about as much sense as listening to your heart-beat—or your breathing. And to show you how normal menstruation is—here's exactly what happens and why

To start with, menstruation is *just one* pa of a continuous performance that goes on in the body. Since you first began to "gro up," a series of changes has been gradual taking place—throughout every month. These changes repeat themselves in a cycl which ends monthly, with menstruation.

FOR WOMEN AT WORK

Why? The reason is very simple. Your organs are built for child-bearing . . . and the monthly cycle is just nature's way of getting ready for that event. Let's look at the diagram below. There you'll find the uterus, or womb—connected by two Fallopian tubes. At the end of each tube is an ovary; storehouse of tiny egg cells or *ova*. When a woman becomes pregnant one of these cells develops into a baby.



The lower end of the uterus opens into the vagina, a canal extending to the outside of the body. So you see, there's a continuous passageway from each ovary to the outside of the body. And during the monthly cycle, what happens is this:

One of the egg cells leaves the ovary. It travels through one of the tubes to the uterus, where nature has been preparing to receive it. She has built up the lining of the uterus; thickened

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month, perhaps. You may well raise a suspicious eyebrow when you find nature working time-and-a-half! Likewise, if yo suddenly prone to "gushings", something is probably amiss. Both conditions are not normal. They call for a physician's advice.

Then, there's the problem of menstrual pain. If you have abnormally severe cramps, tell that to an M. D., too. Becaus most women aren't troubled this way. Some have a sort of glorified tummy-ache: a heavy "dullish" feeling. Or backach But these discomforts aren't serious. Often, in fact, it's merely constipation that causes distress this time. Besides, many women *imagin* they feel worse than they actually do. They get in a dither, or down in the dumps, just by thinking too much ab themselves. But cramps that "double you up" are different. They're not part of nature's plan. More than that, they' saboteurs!—and something should be done about them. So . . . by all mean go see your doctor.

Tapering off —

SOMEWHERE in your middle forties, perhaps, or even in your fifties—you may wake up some fine morning to disco "that" day *isn't* here—for once! The date's neatly marked on your calendar, but your period has forgotten to keep it!

So you go on living your busy life, and next month, ma you menstruate. But nature may "stand you up" again. Thi time for several months at a stretch. And thus your periods

FOR WOMEN AT WORK

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gradually taper off: going . . . going . . . then finally, *gone*. (And you can't really say you're sorry!)

"Change of life" can be as simple as that. Or even more so. For in many women, menstruation stops abruptly—almost overnight. No fuss. No parting "sweet sorrow" that sometimes includes those somewhat unpleasant symptoms you've probably heard about. Actually, most of the rumors you hear about menopause tribulations are false. They're bogeyman stuff. As downright foolish as some of the old-fogey notions of menstruation.

If you've taken good physical care of yourself—kept a healthy outlook and your sense of humor—it's ten to one you'll sail through the menopause minus a worry in the world.

Like menstruation, this "change of life" is a perfectly normal process. It's simply nature giving notice that she's tired of her old job. Now she's ready to retire. And she'll exit gracefully—if you help.

Just be sensible about it all. When you suspect the time has come (and it *can* happen earlier or later than average), talk it over with your doctor. Especially if there's excessive bleeding, which is never normal at any time. Your doctor will check your general condition . . . give you whatever advice you may need.

Meanwhile, keep happy by forgetting yourself. Re-discover your friends. Stay on your job. Fill your off-duty hours with wholesome fun. The main thing is to keep active—and an eagle eye on your diet. Remember, life can *begin* with the menopause. Get a brand new "bang" out of living!

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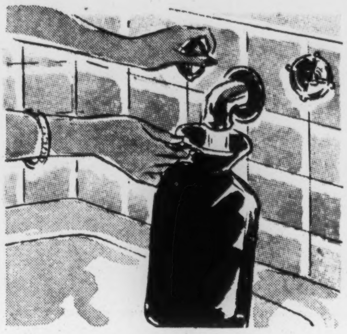
Thumbs Down —



To douche, or not to douche? Certainly not on "those" days! Matter of fact, some doctors frown on any douching at all—*except* when prescribed for some special ailment. Trust your daily bath and deodorant to keep you dainty.

Cocktail-crazy? Tut, tut! Too mu
stimulation's bad at *any* time. "Hig
tonight—low tomorrow. (Nat
drives a hard bargain!) And dur
menstruation, more than ever—t
logy, let-down feeling's just wha
woman needs everything else *but*

Carry on—but carry *lightly*. Don't tote more than you can manage. It strains your innards. Tires you out. And it's likely to step up your menstrual flow. Leave the heavier chores to the huskier sex . . . you'll help *more* by keeping *healthy*.

Thumbs down on tennis—if you p
it a la tournament. Tearing arou
a tennis court tempts nature to t
back. Like all "fierce fun" it sho
be postponed. (Unless your techni
is the slow-motion type—with ti
out now and then).

FOR WOMEN AT WORK

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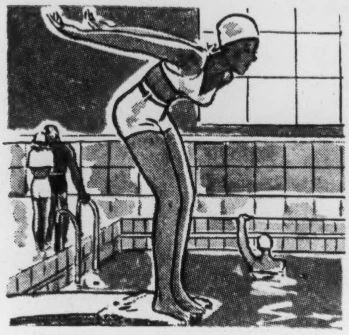
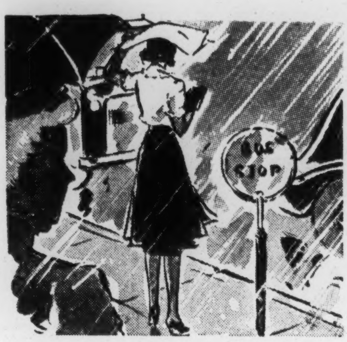
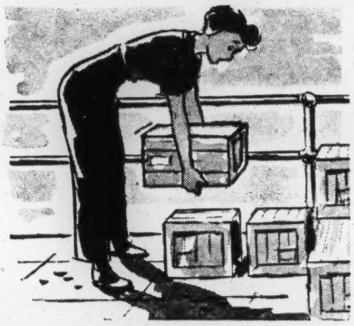
(NO CAN DO)



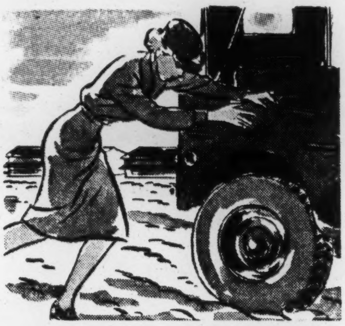
Hold it! Diving's not for you—for it's dollars to doughnuts the water's *cold*. And cold water shocks your system. You can bask on the beach and take the sun. (Go ahead. That's *good!*) But, unless it's fairly warm—lady beware the water.



Don't be a chill Jill! Chills usually cause trouble. Avoid getting wet feet . . . catching cold. When you have a stormy-weather date, you needn't take a rain check if you wear rubbers, carry a bumbershoot. Otherwise, wait till the sun shines, Nellie!



Why lift the dangerous way? There's a knack in avoiding strain. Bend knees. Keep your back straight, "tummy" in. Get close to the object—under, if possible. Lift upward, parallel with body. In carrying, divide weight evenly, or shift from left to right.



And put *this* on the don't-do list! You aren't built to cope with a balky car. Straining is harmful. *Now*, above all . . . when it's apt to cause "floodings" . . . innard injury. Observe this taboo at *home*, too. Don't wrestle with weighty furniture.

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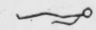
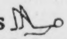
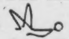
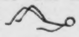
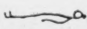
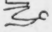
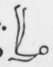
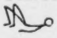
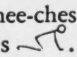
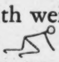
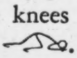
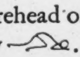
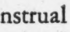
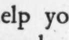
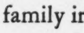
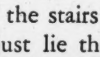
To Curb Cramps..

Of course, abnormally severe cramps need a doctor's attention. B many a minor menstrual ache can be overcome by correcting postur So do these special exercises. (Courtesy of Mademoiselle, Octobe 1942 issue.) Make them a round-the-month routine. Health exper say they'll help to firm up your abdominal walls.

Stretch out flat on the floor . Bend your knees . Se arate knees, keeping feet on floor near buttocks . Lift lower e of spine off the floor . Dig your waist (small of back) in floor. Draw rib cage up toward ears, chin in, pushing up behind the ea Pull shoulders back on floor and down away from ears. Hold th "accentuated perfect position" as long as you comfortably can. Relax a start over again.

Lie on back, arms at sides, palms up . Draw both kne up over chest . Slowly straighten both legs up . Bend both kne and place feet on floor close to buttocks . (During the entire exercis keep small of back pressing into the floor.) Work up to twenty times dail

Take the knee-chest position by getting on the floor with weight knees and palms . Separate knees at least ten inches . Be elbows, resting forehead on hands . Hump the lower back (like a ca Exhale completely . Hold breath to count of ten while you—sudden —jerk rib cage up toward ears. Relax. Stay in this position five minu or until you have done the breathing exercise at least a dozen times.

And to relieve menstrual cramps and congestion—and help yo beauty, too, do this: Tilt one end of the family ironing board (or any lon wide board) on a chair  or on the second step of the stairs  Stretch yourself out on it, head down . And just lie there. S that the small of your back keeps touching the board. If you prefe softer way, use your bed. Prop your hips up on a pillow . Pr your feet up on the footboard (no pillow under head). Try to do this half-hour nightly, though even a few minutes can do a lot.

When "periodic pain" is stubborn . . . and if you have no organic disorder calling for spe medical or surgical treatment, you'll find Kurb Tablets a friend indeed! They help ease nerv tension . . . reduce discomfort . . . promote relaxation. Keep Kurb Tablets handy. Carry th in your purse. Take only as directed on the label and see how Kurb can help *you!* Rememb Kurb Tablets are a Kotex product—a name you *know* you can depend on.

FOR WOMEN AT WORK

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P.S.

When the stork's expected...

and if you're working in a war plant, remember that while your job is important—your health and your baby's welfare are Uncle Sam's chief concern. So he and leading medical advisers have put their heads together. They urge you to be sure you have medical care regularly. Keep in touch with your own doctor. Or, ask your plant M.D. or nurse where you can get the services of a prenatal clinic. And here are other general rules recommended by the U. S. Department of Labor. (Quote):

1 "Pregnant women should not be employed on a shift including the hours between 12 midnight and 6:00 A.M. Pregnant women should not be employed more than 8 hours a day, nor more than 48 hours per week, and it is desirable that their hours of work be limited to not more than 40 hours per week.

2 "Every woman, especially a pregnant woman, should have at least two 10 minute rest periods during her work shift, for which adequate facilities for resting and an opportunity for securing nourishing food should be provided.

3 "It is not considered desirable for pregnant women to be employed in the following types of occupation, and they should, if possible, be transferred to lighter and more sedentary work.

a. Occupations that involve heavy lifting or other heavy work.

b. Occupations involving continuous standing and moving about.

4 "A minimum of 6 weeks' leave *before* delivery should be granted, on presentation of a medical certificate of the expected date of confinement.

5 "All women should be granted an extension of at least 2 months' leave of absence after delivery."

You'll find your personnel department very "human" and anxious to help in any way they can.

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distribution to all of the women i

"Menstrual Physiology"—Jumbo
They illustrate the whole process c

INTERNATIONAL CE
919 North Michigan Avenue

Your Intimate Friend

WHEN it comes to sanitary
protection, chances are you take it fo
granted, like other modern convenienc
And no wonder. What with Kotex yo
at the drop of a nickel in practically
every powder room! Or waiting for y
at almost any store.

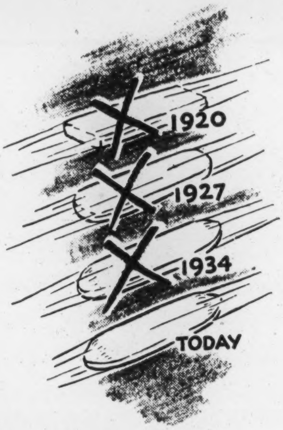
But did you ever stop to think of
days away-back-when . . . B.K. (Befo
Kotex)? When sanitary napkins were an unknown luxury a
woman would have given her eye-teeth for? Before Kotex was
invented, imagine the nuisance of home-mades. The disagreeal
chore of laundering! Not to mention the health risks, the
embarrassing bulges, the chafing—the all-around discomfort of
those bulky makeshifts women had to put up with!

Finally, though, with the first World War—came the
revolution! Army hospitals in
France—short of cotton for
surgical dressings—welcomed a n
invention: Cellucotton (not cotto
Absorbent. Nurses hit on the
bright idea of using Cellucotton
for sanitary pads. They found it
absorbed the flow more quickly
. . . held its shape better than
cotton. And so the Kotex idea
was born. And women by

FOR WOMEN AT WORK

the millions, everywhere, have lived happily ever after! In fact back in 1920, women paid 60¢ a dozen for Kotex—gladly! Kotex sanitary napkins gave them a freedom they'd never known before. Here was a pad that was really *comfortable*—really sanitary. And (joy of joys!) convenient to dispose of.

Better and Better



YET that "pioneer" napkin was a far cry from the Kotex you can enjoy today. Regularly, through Kotex history, something new has been added. Always something to improve the pad. To make it softer. Safer. Less conspicuous. All to give you greater comfort, greater confidence during your period. And think of it: Today's Kotex is yours at less than *half* the price your mother used to pay!

Of course—as always with a good thing—substitutes have sprung up. But you can't fool *all* the women *all* the time! Or why would more women *still* buy Kotex than all other brands of pads put together?

You see, they *know* Kotex is far more comfortable. Because Kotex is made to stay soft while wearing. *They* aren't fooled by pads that only feel soft, at first touch. (There's none of the snowball sort of softness that packs hard under pressure!)

They know, too, that confidence and Kotex just naturally go together! Kotex is built with a special, 4-ply, double-duty safety center. It's a patented feature—the best ever, to prevent

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roping . . . twisting . . . and to increas protection as well. For this double-duty safety center acts as a "backbone" to th napkin. More than that, it's made in "channels" that draw moisture *lengthwis* toward the ends, and away from the si of the pad. (And speaking of sides . . remember, in Kotex there's no *wrong* side to cause accidents!)

All this, alone, is enough to keep a woman's confidence zooming! But wait . . . there's more! Flat, pressed ends that don't show because they're not stubby . . . don't cause tellt lines. And Kotex gives you this extra poise-preserver! So, at Kotex time, whether you're garbed in slacks—or a sleek, slinky, formal "job" (for off-duty shindigs)—none will be the wiser.

One for all

WHEN all's said and done, it's *natural* that Kotex should be most women's choice. Didn't women start the Kotex idea? Haven't they suggested each worthwhile improvement? And you c bet your Sunday bonnet 'twas the females who thought up the three Kotex *sizes*. Thanks to those "designi women" you'll find your Kotex practically made to order! Mind you, not just to suit your *build*, if you happen to be large, medium or small But to suit your individual differenc

FOR WOMEN AT WORK

in *flow*, on different days of your period.

In a way, choosing your own size is something like choosing a new hat. A certain millinery mode may be just the dish for Ellie M.—or Susie Q. But for *you*, 'taint necessarily so. Likewise with Kotex. And the only way to discover *your* size is to try all three. It's easy to do. You can tell each size by the color of its box.

KOTEX
SANITARY NAPKINS
REGULAR
KOTEX
SANITARY NAPKINS

and put this in your memory book

Granted you're in the know about napkins . . . how would you score in a little quiz? Something like this: Do you *really* know just how to wear a sanitary pad? Sure, go ahead and smile! But believe it or not, there's many a woman who could use a bit of advice on the subject. Some women confess they had never learned to attach a napkin properly—not 'til they happened to go to a hospital and were taught the knack by a nurse! Since it makes a world of difference in comfort, here's the way the deed is done:

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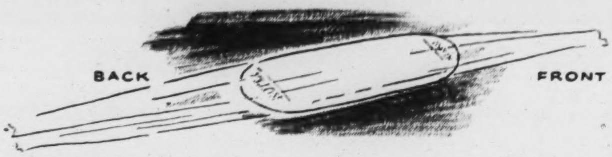
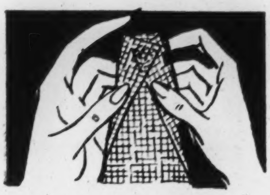
Always

Wear the gauze fold side of the sanitary napkin away from the bo This provides a smooth, unbroken surface to be worn next to the bo



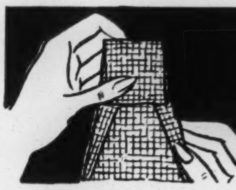
The short gauze tab indicates the front of the sanitary napkin; long tab the back.

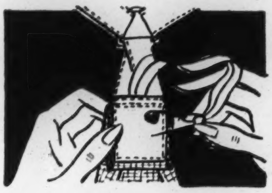
With Pin Belts



← Give each gauze tab a diagonal turn on either side.

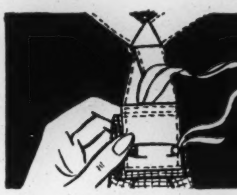
Turn down the → tab to the proper length.





← Place belt tabs on top of folded gauze tabs.

Pin through belt → tab and several thicknesses of gauze.



With Special Fasteners

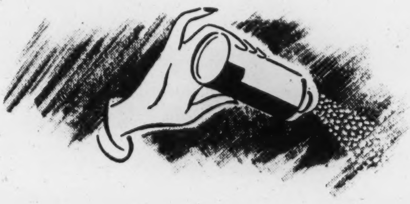
ALWAYS—Follow instructions given by a reliable manufactu Methods of attaching belts have often been revised under wartime strictions. Following directions is a "must" for each individual b It's the only way you can be sure of real satisfaction in *any* belt you b

FOR WOMEN AT WORK

Fresh as a Daisy

Then, here's Part II of our Kotex Kwiz: If Kotex is changed frequently—and great care is taken in bathing—do you know why a deodorant should be used on a sanitary napkin? Science has the answer to that one. It seems that as the menstrual flow leaves the body —it is odorless. But once it reaches the air, odor develops immediately. And, in order to be effective, the deodorant must have direct contact with the flow. That means a *powder* deodorant is needed—sprinkled on the surface of the napkin. Why a powder? Because a powder doesn't interfere with absorption. You may find a cream deodorant well and good for ordinary purposes. But a cream forms a film that slows up absorption. When applied on a sanitary pad, it tends to spread the moisture toward the edges, instead of allowing it to penetrate the bulk of the napkin, as it should.

A positive powder deodorant like Quest (created expressly for napkin use) will banish all body odors completely. And this is important, for odors increase during menstruation. To keep dainty-fresh as a daisy, just remember this simple routine: Every time you change your Kotex (4 or 5 times a day, if possible) . . . sprinkle a little Quest the length of your napkin. You'll be certain to avoid offending. For unscented Quest doesn't cover up one odor with another. It actually destroys odors . . . safely and surely.



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Form K-223

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Plain talk about Tampons

If you're curious (and what woman isn't?) you're probably intrigued with the tampon idea. After all, this new *internal* type of sanitary protection does seem to make good commo sense. No belts. No pins. No odor problem. It's certainly convenient! But . . . you may ask, is it all right for *me* to wear tampons?

Well, authorities say this: Women with anatomical or functional irregularities—and young, unmarried girls—should consult their doctors before attempting to use tampons of any kind.

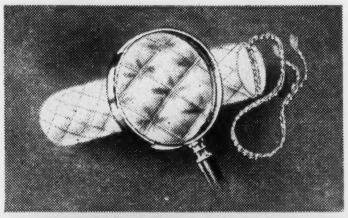
Then, too, many women say they don't get really comple protection from any tampon—when the flow is heaviest. However, if the flow is light, some can wear them safely on days. In any case, doctors recommend changing the tampon frequently. Even though there's no seepage. And because

FOR WOMEN AT WORK

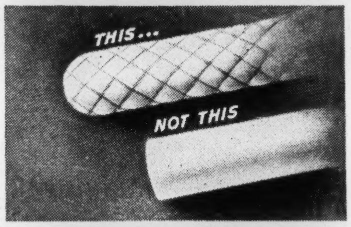
it's so important to your comfort, your safety, to insert a tampon *correctly*—be sure to read and follow the directions that come with a reliable brand.

And talking about reliable brands . . . you know, of course, that *every* product sponsored by Kotex is one you can trust. There *is* something in a name! Especially that good, familiar name of Kotex. Why, to millions of women, it's "tops" in sanitary protection! And ever since Fibs, the Kotex tampon, was developed by specialists in menstrual hygiene—it's been thoroughly tested in actual use, time and time again. Women who wear them will agree that Fibs offers definite advantages. Actually, there are 3 ways to tell a Fib—from any other tampon. (Count 'em!)

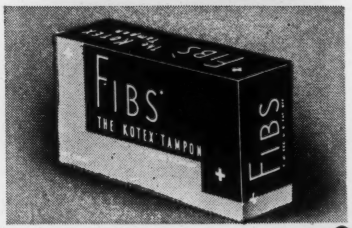
1 Fibs are "quilted." For more comfort, greater safety in *internal* protection. That's why, with Fibs there's no danger of cotton particles clinging to delicate membranes. And, too, quilting controls expansion . . . so Fibs don't stretch out to an uncomfortable size that might cause pressure, irritation, or make removal difficult.



2 Fibs have rounded ends. Smooth, gently tapered ends—for *easy insertion!* Unlike any tampon you've ever tried. Why, your own eyes tell you that Fibs *must* be easier to use. And you'll like the just-right size; not too large, not too tiny.



3 Fibs are the *Kotex* tampon. No other brand is made of Cellucotton: the same, soft, *fast* absorbent used in Kotex and demanded by many of America's top-flight hospitals. In Fibs, as in Kotex, there's no compromise with quality. You get protection as safe and sure as modern science can make it.



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✓ "That Day Is Here Again," a b
distribution to all of the women i

✓ "Menstrual Physiology"—Jumbo
They illustrate the whole process c

INTERNATIONAL CE
919 North Michigan Avenue

Give a little girl a great big hand

Know Someone Who Needs To Know?

Send for this booklet that tells all. It's Free!

Remember how puzzled *you* were —when "that" day arrived for the first time? How you wished you could find out what was what—but even Mother hemmed and hawed?

Perhaps you know some youngster *now* who's in the same boat! Help her out! Send today for the free booklet "As One Girl To Another." It tells her—*in her own language*—everything she needs to know!

Maybe she's worried about what a girl should or shouldn't do on "difficult" days. Maybe she's stymied about sports . . . bathing . . . jive sessions . . . grooming . . . social contacts. "As One Girl
Another" gives all the ang
Quickly! Correctly! And it's bri
as a button!

So, lend the little girl *you* kno
great big hand! *Right now*—d
off your name and address on
coupon below. Mail it pron
You'll receive the booklet FR
with the compliments of Kot
Sanitary Napkins.

FREE! Write in your name and address and mail to Post Office Box 3434, Dept. KB, Chicago 54, Ill. A copy of "As One Girl To Another" will be sent postpaid and free.

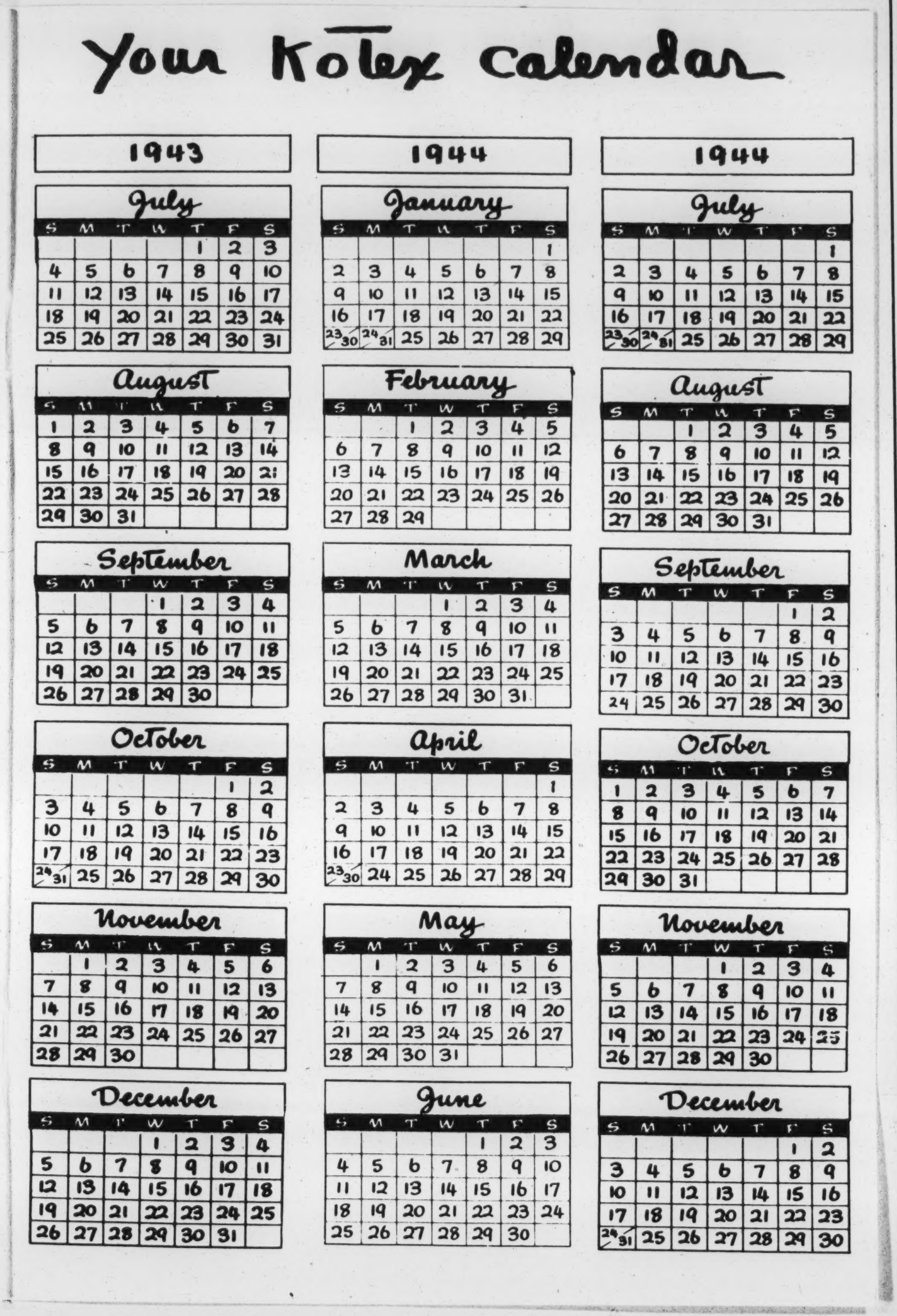
Name______________________________

Address____________________________

City________________State____________

*T. M. REG. U. S. PAT. OFF.

FOR WOMEN AT WORK



Your Kotex Calendar

1943

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Debunks old-fashioned superstitions
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Do's and Don'ts
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Posture improvement exercises
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When the stork is expected
Page 14

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Form K-223

The Question

At what age should a girl be told about menstruation?

The Answer

Certainly, before her first period which, in the case of some girls comes before the age of 12. Write for the booklet, "As One Girl to Another," Box 343
Chicago, Ill. It tells the story the way girls tal

The Question

How much protection will a tampon provide?

The Answer

That depends upon the rate and amount of flo
Until you learn how much you can depend upon
tampon, wear Kotex with Fibs.

The Question

If Kotex is changed frequently and great care is us
in bathing, why is it necessary to use a deodora
on a sanitary napkin?

The Answer

After the menstrual flow leaves the body, it brea
down and odor develops fairly quickly. Besid
the sweat glands are more active during menstru
tion than at other times.

The Question

What is the total blood loss during menstruation?

The Answer

The Follow-Th

**Take advantage now of this c
tion for industry. You will finc
have wanted to know more ab**

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✓ **"That Day Is Here Again," a b
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✓ **"Menstrual Physiology"—Jumbo
They illustrate the whole process c**

INTERNATIONAL CE
919 North Michigan Avenue

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Help her out! Send to
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FOR WOMEN AT WORK

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"THAT DAY IS HERE AGAIN"

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Debunks old-fashioned superstitions
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~~Nowndes~~
~~Nyswander~~
~~Phillips~~
~~Mettert~~

Return to
Nyswander

FATIGUE
Versus
EFFICIENCY

Bottled,
carbonated drinks
have little
nutritive value
& are not recom-
mended for
snack periods
by Nutrition experts.
I wouldn't use
this as a reference
on fatigue.
M. Mettert

Copyright 1942, by
American Bottlers of Carbonated Beverages
Washington, D. C.

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FOREWORD

With fatigue and its consequent reduction of efficiency occupying the limelight to an extent greater than ever before, this study has been made in an attempt to ascertain the causes of fatigue and how fatigue can be relieved.

Not only the factory worker suffers from fatigue, Housewife, office worker, truck driver, farmer and school child alike are victims of fatigue when work is monotonous or requires a high degree of concentration.

Fatigue of this type is not entirely relieved by a full night's sleep. Fatigue comes from pressure and monotony of work.

Accidents and mistakes increase as a result of fatigue. As has been shown, the relationship of the accident rate to fatigue is very close. To a certain degree, fatigue can be avoided by preventive measures. Obviously sufficient rest during the period when not at work, proper diet and posture all lessen the dangers attendant upon fatigue. They do not, however, remove the possibilities of fatigue. During the working day, brief rest periods of 5, 10 or 15 minutes in the morning and afternoon, together with light refreshments, are of inestimable value.

A few minutes away from a task, whether it be in an industrial plant, in a business office, at home or at school, offer relief from the monotony of work. Nourishment of some kind helps to renew vitality, tests show.

Relaxation and refreshment are important under ordinary working conditions, but tedium or pressure make them absolute essentials to efficiency and good health.

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I. FATIGUE

- A. CAUSES
  - 1. In industry
  - 2. In business
  - 3. In the home
  - 4. In schools
- B. EFFECTS
  - 1. Work curve
    - a. Morale of worker
    - b. Dollar value to employer of healthy employees
  - 2. Accidents
  - 3. Health
- C. RELIEF
  - 1. Rest periods
  - 2. Refreshment
  - 3. Diet
    - a. Dehydration
      - 1) Uses of water in the body.
      - 2) Water requirements
      - 3) Beverages
    - b. Value of Carbonated Beverages
      - 1) As refreshment
      - 2) As food

FATIGUE Versus EFFICIENCY

Fatigue and Its Causes

Fatigue has been defined as a more or less complete loss of ability to react to a stimulus brought on by functional activities or the result of activities which show themselves in a diminished capacity for doing work. Although a certain amount of fatigue is a normal result of physical activity and is harmless, it can become harmful if sufficient time is not taken for rest and recuperation.[1]

The factors contributing to fatigue are, of course, widely varied. They are dependent largely upon the type of work or activity in which an individual is engaged and the status of health and endurance of that person.

IN INDUSTRY -- It is generally believed that fatigue occurs more frequently among factory employees than in other groups of working people, as factory work is often more routine and monotonous. Even in routine work, however, a high degree of alertness and attention is necessary. When fatigue sets in, attention is easily diverted, reactions are slower and accidents very often result.

Long hours of work, noise, poor illumination and ventilation, insufficient space, complexity of work, continuous concentration, poor posture, unsuitable clothing, ill-health, and general irregularity of habits are only a few of the possible causes of fatigue in industry.

Vibration and the danger of accidents in industrial plants tend to hasten the onset of fatigue, as will excessive cold or heat, malnutrition, inexperience and necessary speed of operation. Short frequent rests are advisable under such conditions.

IN BUSINESS -- The causes of fatigue are, in general, much the same in offices as they are in factories except for fatigue caused by heavy muscular work. Monotony, poor light and ventilation, and pressure are seemingly the outstanding causes in office work.

IN THE HOME -- Fatigue in the home has never been given sufficient consideration. Poverty and improper diet are important factors in the quick susceptibility to fatigue of homemakers. Worry is another factor, and can, in fact, be classed both as a cause and a result. Homemakers must realize that it is every bit as important to follow a well-organized, regulated plan of work in the home as it is in industry. It pays in efficiency and safety in the home, too, to take time out in the middle of the morning or afternoon to relax and enjoy some sort of light refreshment.

IN SCHOOLS -- The problem of fatigue in schools is becoming increasingly important. Many students are employed after school hours, doing jobs ranging from light mental work to tasks involving heavy muscular activity. Whatever the job may be, these students carry an extra burden. They find that they must study late at night in order to complete homework assignments or to prepare for examinations. They are in great danger of suffering from fatigue through overwork, and should watch their diets carefully and manage to rest and relax at intervals.

Fatigue and Its Effects

PRODUCTION CURVE -- Affecting both mental and physical capacity, the effects of fatigue may best be seen in the records of production over a stated period of time. Studies of employees' work records in various industries show that efficiency declines toward the latter part of the forenoon. After lunch, it improves and then declines again more rapidly.[1] (See Figure 1)

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[1] *"Practical Methods for Reducing Fatigue", Safe Practices Pamphlet No. 50, National Safety Council, Chicago.*

The variations in the work curve can, without doubt, be traced to fatigue. However, if there are extreme and rapid changes in the curve, they can sometimes be attributed to boredom.

FATIGUE AFFECTS MORALE OF WORKER -- When workers are suffering from fatigue, their production capacities are lowered. Their morale is lowered in a like proportion and they become irritable and uncooperative. As a result, they are less attentive, and lack of attention is one of the primary causes of accidents in industry. Whenever the capacity for production declines, accidents increase, occurring most frequently during periods of accumulated fatigue.

FATIGUE OF WORKER AFFECTS EMPLOYERS GAINS -- From a dollar standpoint, the healthy worker, who is not overtired, is preferred by the employer. Naturally, when an employee is healthy he produces more, his morale is higher, and he is alert enough to prevent careless accidents. On the other hand, when an employee is not well, the production rate is lower and accidents are more frequent. Moreover, he is often absent from work, and it is sometimes difficult to obtain temporary workers to fill in. All this results in a monetary loss to the employer.

ACCIDENTS IN INDUSTRY -- An analysis of circumstances of accidents in industry shows, in a very high percentage of cases, that the accidents could have been avoided had the injured person reacted more quickly, been more attentive, or had better coordination. Only a small percentage of accidents result from mechanical causes. The most common cause is fatigue which affects attention and alertness.[2]

ACCIDENTS IN THE HOME -- In the home, also, many accidents result from fatigue. In 1940, 33,000 persons were killed by accidents in the home -- almost as many as were killed by motor vehicles.[3] Many of the

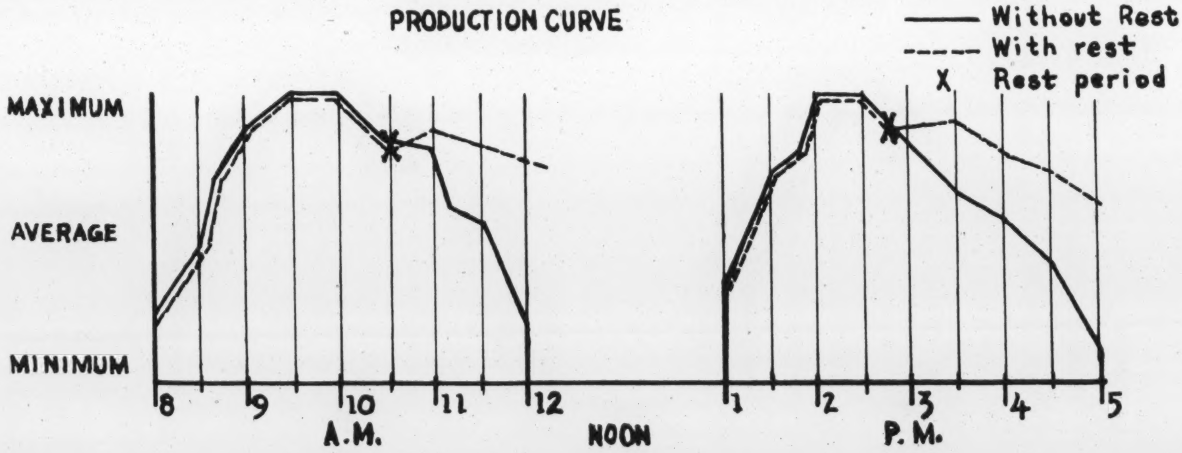

Fig. 1

A comparatively regular, and high, production curve may be maintained under a system of organized rest periods.

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[1] *Diehl, Harold S., M., Textbook of Healthful Living.*

[2] *Florence P. Sargent, U. S. Public Health Service Bulletin No. 458, "Methods for Field Studies of Industrial Fatigue."*

[3] *National Safety Council News Letter, July, '41, National Safety Council, Chicago.*

deaths occurring from these accidents were due to forgetting to disconnect electrical appliances, falls resulting from not turning on lights, or to general carelessness -- very often the results of fatigue. When senses are dulled, reactions are naturally much slower. The mind is not alert to hazards prevalent in every home.

FATIGUE JEOPARDIZES HEALTH -- Health suffers as a result of fatigue. The most striking effects of fatigue are upon the nervous system, manifested in the form of irritability, nervousness, restlessness, and insomnia. It is a known fact that homemakers cannot perform their housekeeping duties efficiently when they are tired. Consequently, they cannot give their families the attention and care that they should have. Likewise, employers realize that healthy workers are not only happier, but that they do much better and more work. A man who is either physically or mentally ill must take sick leave more frequently. He is often subject to worry and his attention is not focused on his job. Consequently, he is more likely to meet with accident.

Importance of Rest Periods

Many persons do not realize that fatigue is often unnecessary. Precautions may be taken which will help prevent fatigue. Studies of industrial efficiency prove that the nature and severeness of fatigue may be modified by rest periods, food, working techniques and habits.

At the General Electric plants, all departments are given a few minutes for relaxation in the morning and in the afternoon. "One way to decrease accidents is to decrease fatigue," said Safety Engineer Rudolph Jacobs of the Edison General Electric Appliance Company, Inc.[1] Mr. Jacobs has concluded from his experiments that "rest periods, with some refreshment, increase efficiency and production throughout the day."

Fig. 2

Housewives not only have adopted labor saving devices, but they are welcoming another aid to effectiveness -- mid-morning and mid-afternoon rest periods.

WESTERN ELECTRIC EXPERIMENT -- Mr. Jacobs' conclusions closely correspond to the results of an experiment which was conducted at the Western Electric Company.[2] The tests were made over a period of approximately seven months to find the effects of various types of recess periods.

First, workers were given two rest periods of five minutes each -- one at ten o'clock in the morning and another at two in the afternoon. This system resulted in increased output. Ten minute rest periods were then introduced and a rise in production was evident immediately.

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[1] *Interview with Rudolph Jacobs, General Electric Company, May, 1942.*

[2] *Roethlisberger, F. J., and Dickson, William J., "Management and the Worker".*

Still another recess system was tested. Six 5-minute periods were set aside each day for rest. This plan, however, was unsatisfactory. Finally, two 15-minute periods, one at 9:30 in the morning, the other at 2:30 in the afternoon, were given to the workers. During the morning recess, light refreshments were served. Again, an increase in production resulted. It was decided that this was the most effective plan.

From these tests, it was concluded that the general improvement in the rate of production was due to the introduction of rest periods, and that rest periods prevent cumulative fatigue.

OTHER TESTIMONIES ON VALUE OF REST PERIODS -- Another testimony to the value of rest periods in relieving fatigue is found in Charles Manzer's statement that short, frequent rests in types of work which are muscular are a greater aid to efficiency than are long, infrequent rests. That more work is done after a period of rest may be due to the increase in circulation of blood and metabolic rate which is caused by the contraction of muscles soon after work is begun. Manzer points out, however, that the mental attitude of individual workers may account for differences in individual output and recuperative value of rest periods.[1]

Although the actual working time is decreased by rest periods, in most cases an improvement of the quantity and quality of output has been noticed. This is particularly true in work of a monotonous character, and the influence on production is most marked in processes which are largely dependent on the activities of the worker. Before rest periods are scheduled, a careful investigation of the existing conditions of work should be made and a typical output curve obtained. The most suitable number, duration and distribution of rest periods can thereby be more successfully decided upon. Whether the work involves continuous standing or sitting positions and speed of operations are factors that should be considered in planning the rest period schedule.

In fact, in many cases the beneficial effects of a rest are not limited to the time immediately after the recess, but also before. This is a purely psychological effect in that it gives the worker the incentive to complete the task at hand before his rest period is due.[2]

It has been found that organized rest periods are better than those workers take of their own accord. Workers who are given regular rest

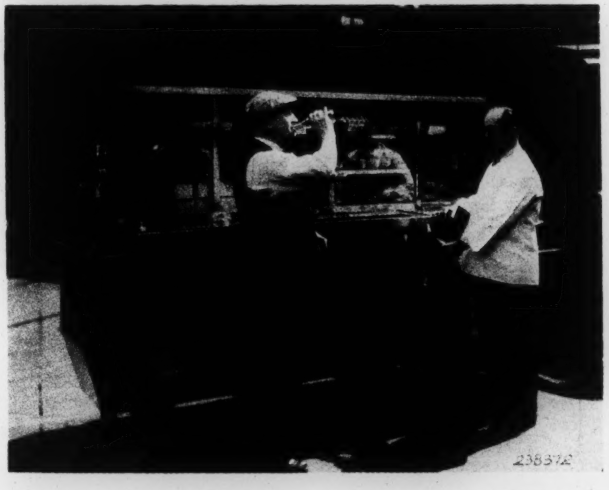

Fig. 3 Courtesy of National Safety Council

This rolling food dispenser enables factory employees to purchase soft drinks and other confections without leaving their jobs.

[1] *Manzer, Charles W., Ph.D., "Archives of Psychology."*

[2] *Wyatt, S., M.Ed., Report No. 42, Industrial Fatigue Research Board, London.*

periods are able to relax completely whereas employees taking a few minutes to rest may be tense due to fear of being caught. If food can be taken during these periods they are particularly valuable in helping to maintain high production levels.[1]

Value of Refreshment During Rest Periods

Several years ago, it was suggested that fatigue might be due to a decrease in the use of carbohydrates by the body.[2] To correct this condition, foods containing carbohydrates in a readily assimilable form were recommended for between-meal nourishment in industrial plants. Heavy food or too much of it is conducive to sleep. For this reason, food taken during the working day should be easily digestible.

Many foods would fill these requirements, but it is difficult to prepare and serve them in places of work. Liquid food is the most easily digestible, and bottled carbonated beverages offer liquid food in a convenient and sanitary container. Automatic dispensers have been installed in many factories and offices, making bottled carbonated drinks easily available to workers. Soft drinks are excellent for between-meal refreshment because they contain sufficient carbohydrates to renew energy. The sugar in bottled carbonated beverages is in the form most easily utilized by the body, and therefore, tissues receive nourishment more quickly.

The diet also plays an important role in relieving fatigue. If sufficient quantities of carbohydrates are not obtained in regular meals, energy must be drawn from the subcutaneous fatty deposits in the body. Breakfast is very often deficient in carbohydrates.[3] It is advisable to include cereal with milk and sugar and sweetened stewed fruits in the breakfast menu. In other meals, carbohydrates may be obtained in cereal grains, sugar, potatoes, and certain vegetables.

Sufficient Water Intake Essential

The most vital element in the diet, however, is water. Though it has no nourishing qualities, water is the principal constituent of every living organism and the body is, therefore, more dependent upon water than anything else.

The body must have water for a number of purposes, among which are:

1. Lubrication of joints and protection of the body from injury resulting from impact or shock.

2. Diluting blood and lymph, serving as an agent of circulation.

3. Regulation of body temperature through evaporation from the surface of the body.

4. Digestive processes.

5. Excretion of soluble wastes of the body.[4]

Essential for various metabolic processes, water must be ingested each day in quantities sufficient to keep the balance of fluids in the body at the proper level. During the course of a day, approximately two and one-half quarts of water are lost by the body. In order to make up for this loss, the body must receive a like amount of liquids, either in beverages or in solid food.

Dr. Bogert[5] suggests a plan for drinking water throughout the day to assist in supplying these needs of the body. One or two glasses on rising, one before or with each meal, one at mid-morning and another at mid-afternoon, making a total of seven glasses.

---

[1] *Kassoris, Max, D., Monthly Labor Review, U. S. Bureau of Labor Statistics.*

[2] *Haggard, H. W., M.D., Science of Health and Disease, 1927.*

[3] *Cameron, H. C., "The Nervous Child at School".*

[4] *Thomas, Gertrude I., "Dietary of Health and Disease".*

[5] *Bogert, L. Jean, Ph.D., "Nutrition and Physical Fitness".*

During the morning and afternoon this requirement of the body for fluid intake should be satisfied. Water will satisfy this requirement, but it lacks features which will overcome the natural tendency to delay or refuse to recognize the bodily need unless that need approaches a real desire. With the added attractiveness of flavor and carbonation, soft drinks create the desire, satisfy the bodily need and, in addition, contain the carbohydrates to replenish the expended energy.

Caloric Requirements

Caloric requirements of an individual vary with the type of work he does, just as the carbohydrate requirements of individual persons differ. The following chart illustrates the different requirements of men, women, and children of school age, in relation to their activities.

CALORIC REQUIREMENTS PER DAY[1]

INDIVIDUALS	CALORIES
Man:	
Heavy work	3,400 to 4,000
Moderate work	3,000 to 3,400
Light work	2,000 to 3,000
Woman:	
Active work	2,800 to 3,000
Housewife	2,600 to 2,800
Boy - 14 to 18	3,000 to 3,400
Girl - 14 to 18	2,800 to 3,000
Child:	
12 to 14	2,800 to 3,000
10 to 12	2,300 to 2,800
8 to 10	2,000 to 2,300
6 to 8	1,700 to 2,000

Soft Drinks Aid Relief of Fatigue

Food taken between meals must be carefully selected to obtain the greatest benefit. Among the best of the various types of light nourishment which employees might receive during the day are carbonated beverages. The following chart shows the number of calories, the percentage of water, carbohydrates and other elements contained in soft drinks:[2]

COMPOSITION OF CARBONATED BEVERAGES

Calories	167
Water (%)	85.73
Carbohydrates (%)	12.66
Flavor, Carbon Dioxide, Fruit Acids (%)	1.61

The percentages in the above chart show that from the point of view of the amount of energy derived from refreshment, soft drinks will give rapid relief from fatigue.

Carbonation -- which literally means impregnation with carbon dioxide -- adds not only a tingling and pleasing element to the drink, but supplies the characteristic which nature has placed only in a few springs. It is also present in human and cow's milk to the extent of 10 per cent by volume.

In many hospitals, carbonated beverages are prescribed for patients because of the fact that they are liquid foods which furnish energy in an easily available and assimilable form. Carbonated drinks are found to have a beneficial effect in case of acid fermentation in the stomach, thereby checking nausea, and they also promote good digestion and stimulate the appetite for other foods.

With reference to food in the relief of fatigue among school children, soft drinks are, again, very effective. In addition to the aforementioned qualities of bottled carbonated beverages, it should be remembered that too much very hard water is not beneficial to children[3] To keep water intake up to par, and to protect children from any possible harmful effects of an excess of highly mineralized water, soft drinks are the ideal solution. If added nourishment is desirable, soft drinks may be blended with milk.

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[1] *Diehl, Harold S., M.D., Textbook of Healthful Living.*

[2] *Bulletin 28, Office of Experiment Stations, U. S. Department of Agriculture.*

The pleasure afforded by carbonated beverages as refreshment is well known to everyone. Soft drinks are universally liked by young and old for their zippy tang and flavor. A carbohydrate-containing liquid food combines the functions of providing bodily energy and contributing to general good health by furnishing part of the liquid so necessary to life.

* * *

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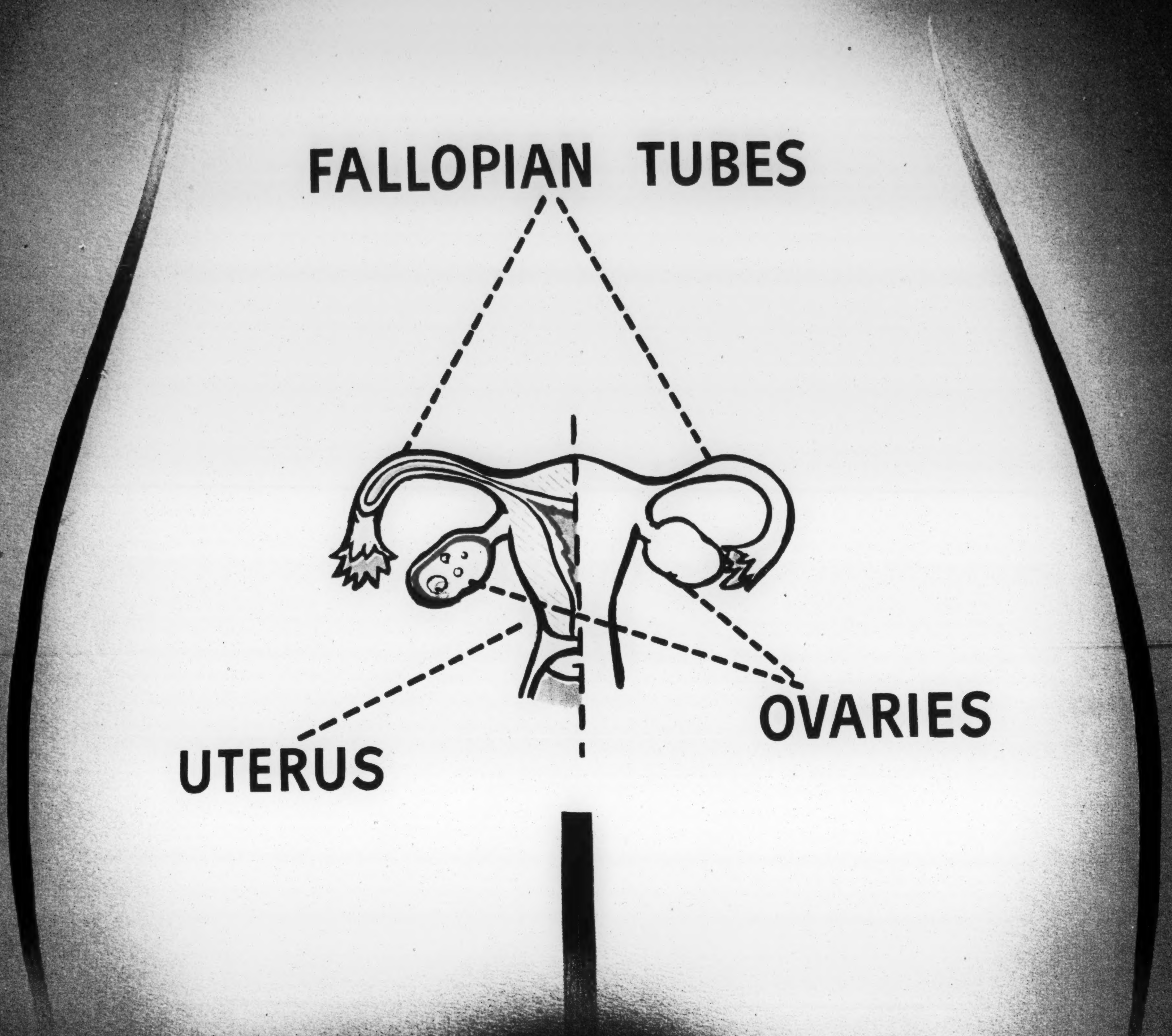
[3] *Rector, Frank Leslie, M.D., New York Medical Journal.*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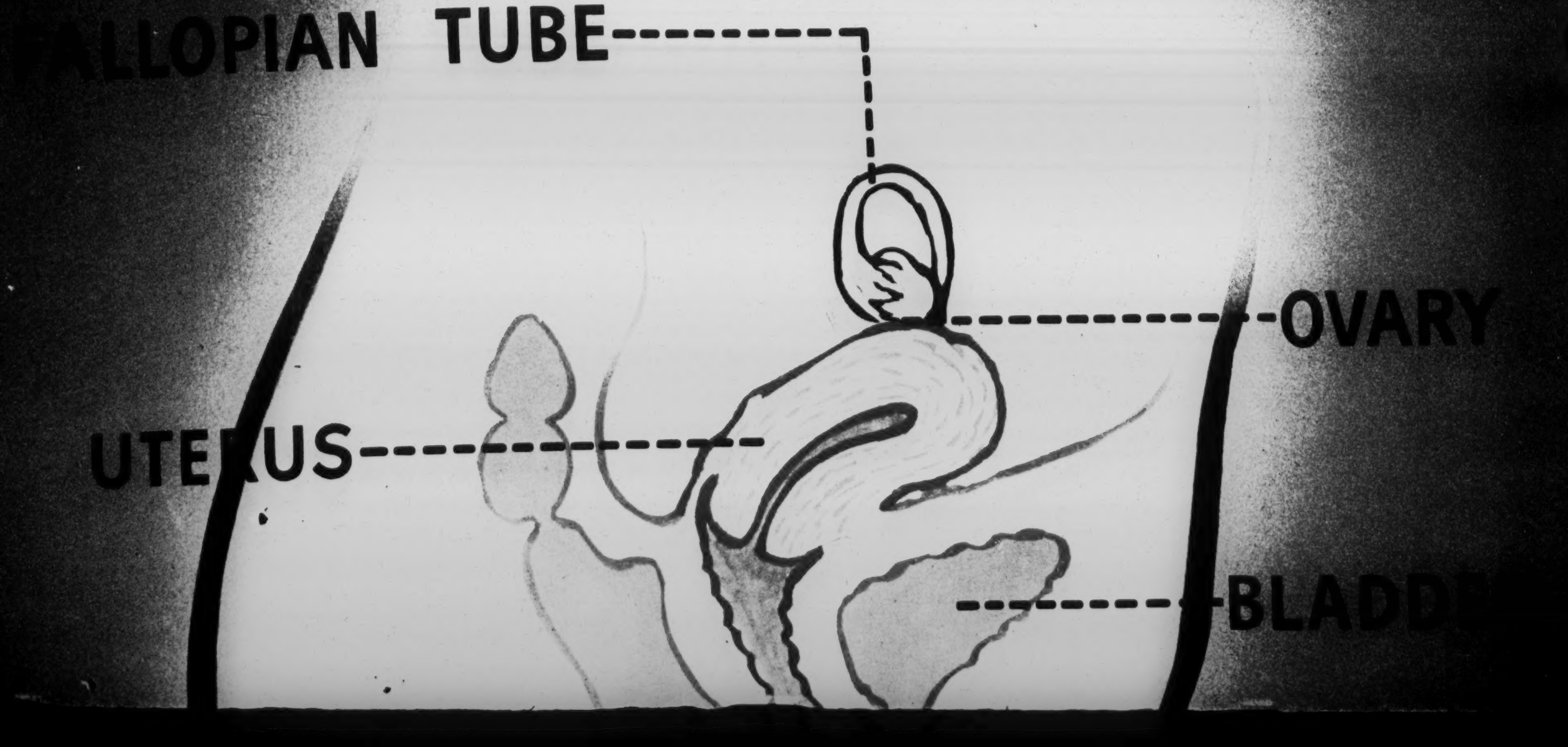
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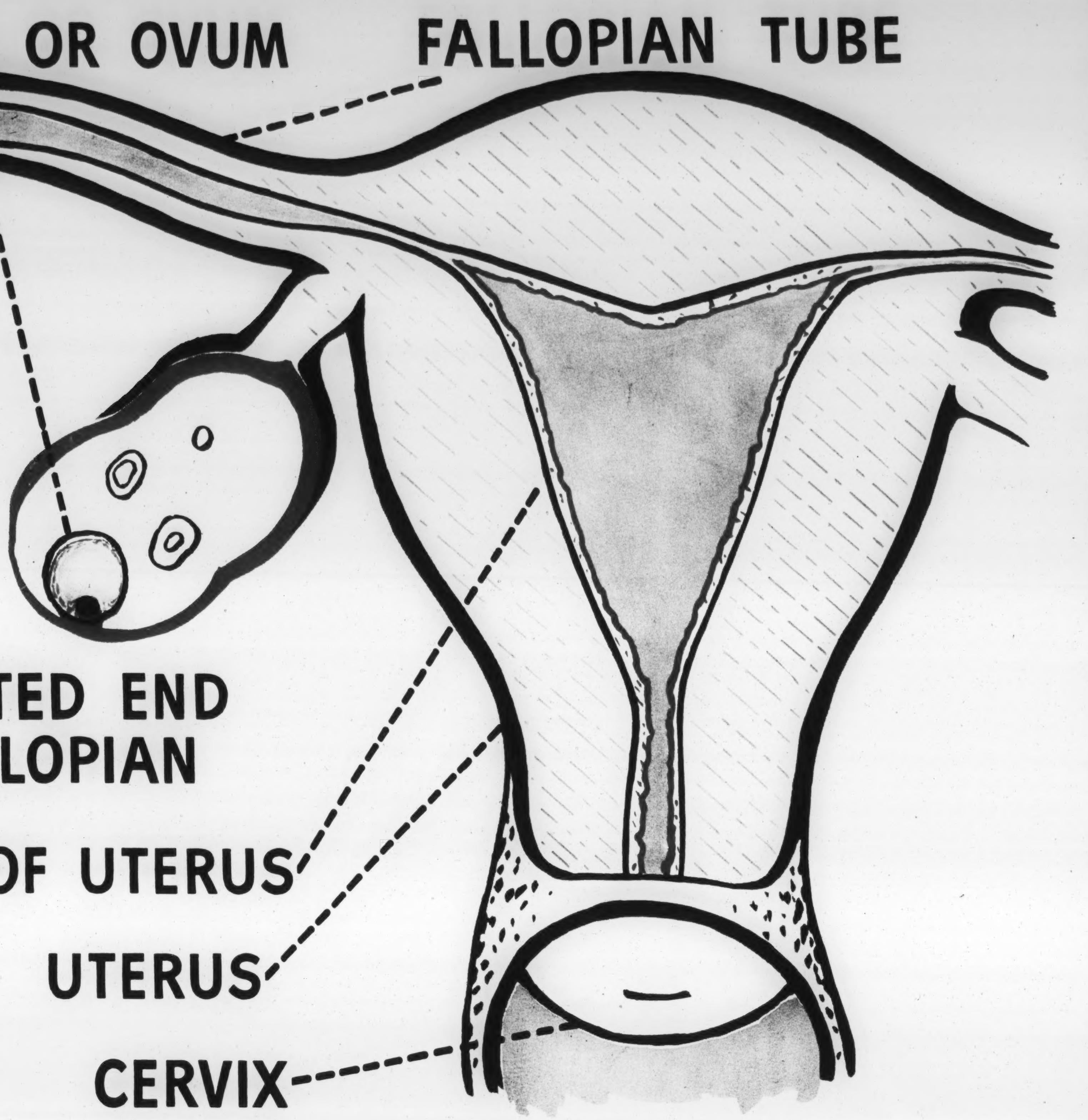
"MENSTRUAL PHYSIOLOGY

Compliments of Kotex



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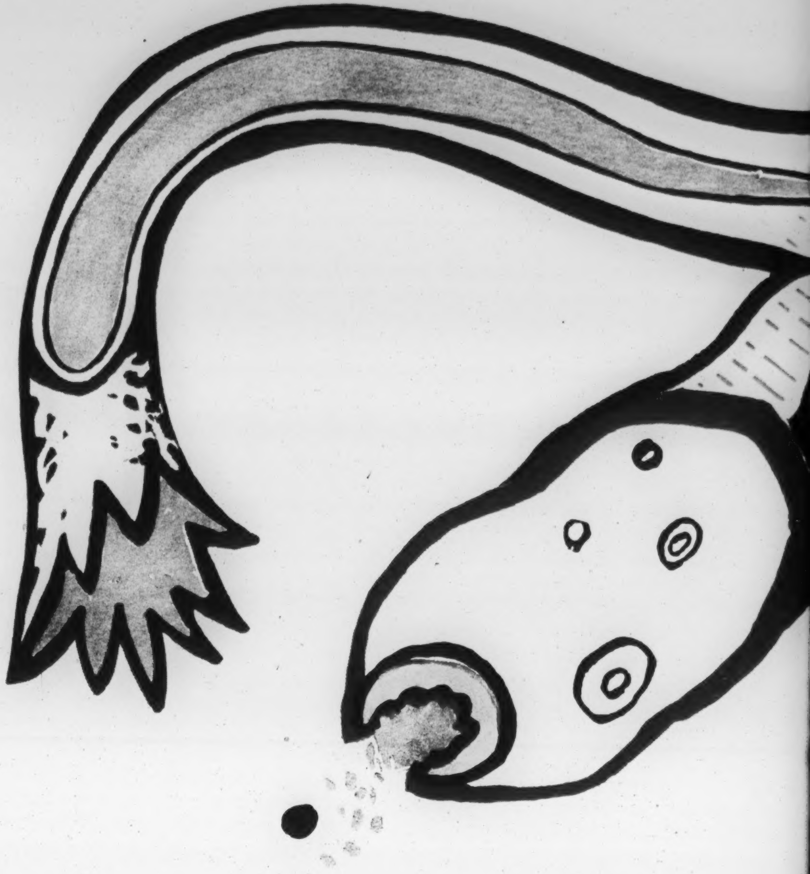

OVULATION

The particular ova that outstrips the others in
moves toward the wall of the ovary. There it
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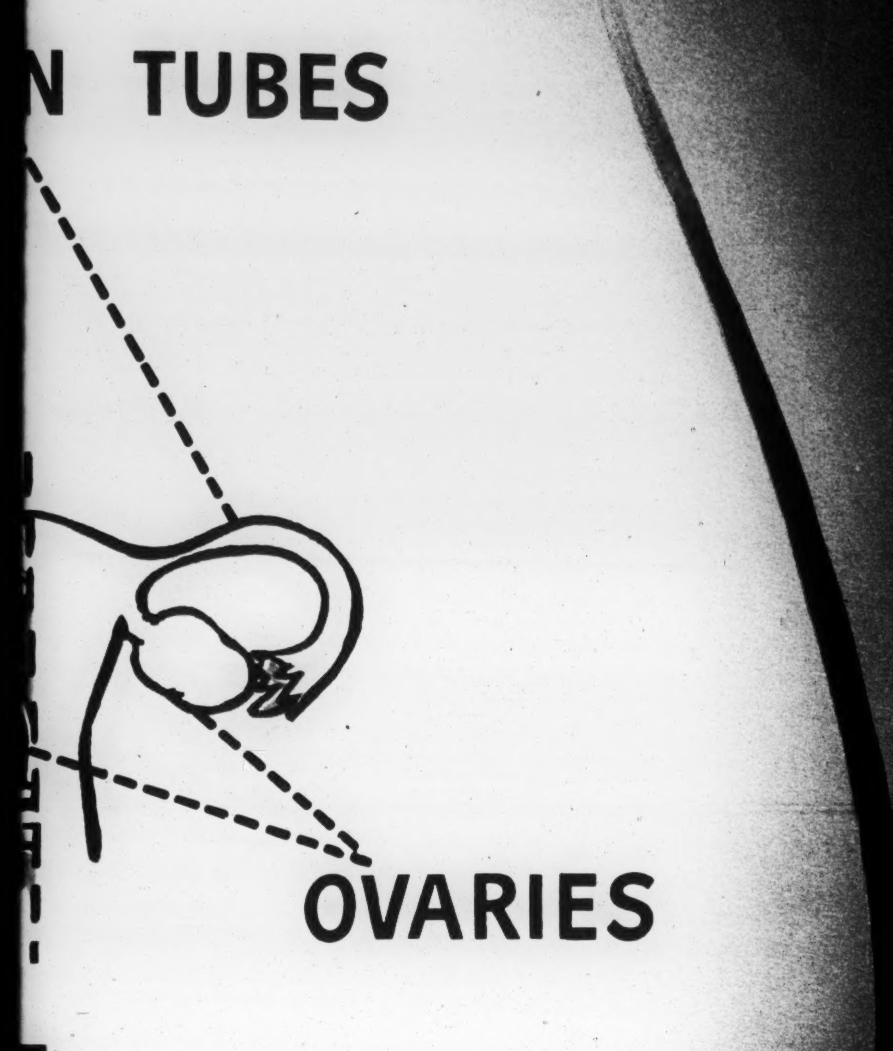
from the follicle is known as ovulation.

CORPUS LUTEUM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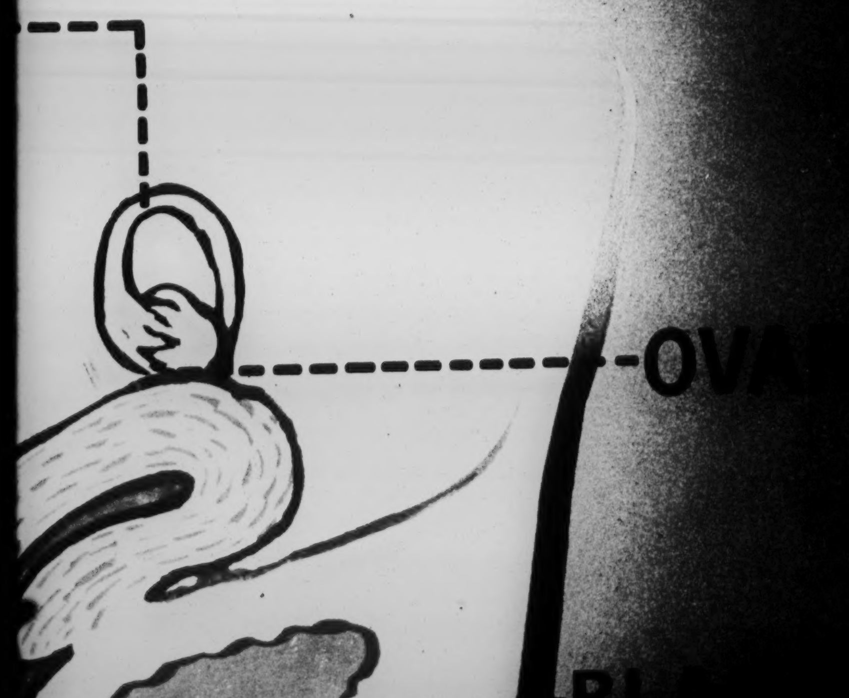

"MENSTRUAL PHYSIOLOGY"

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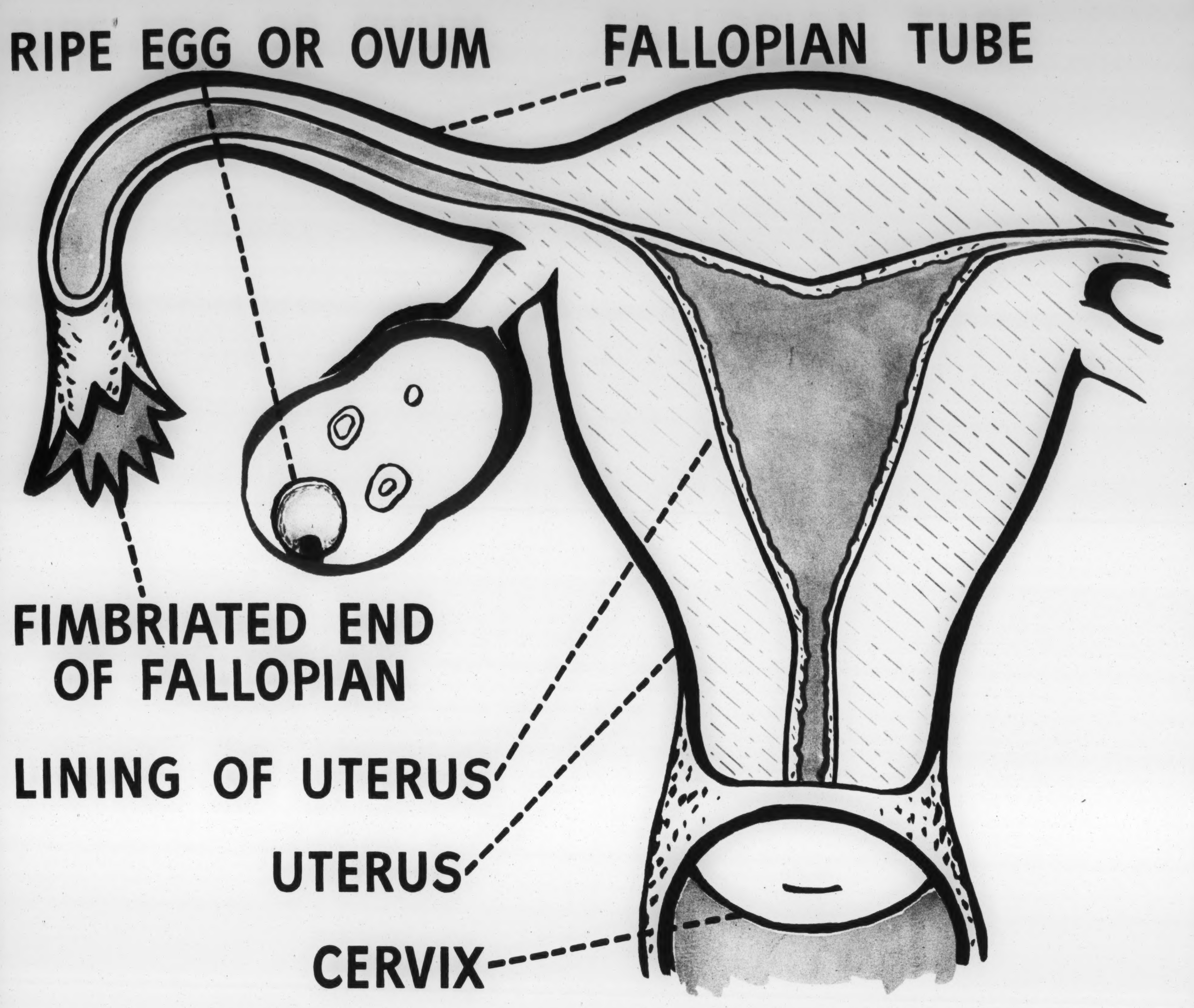
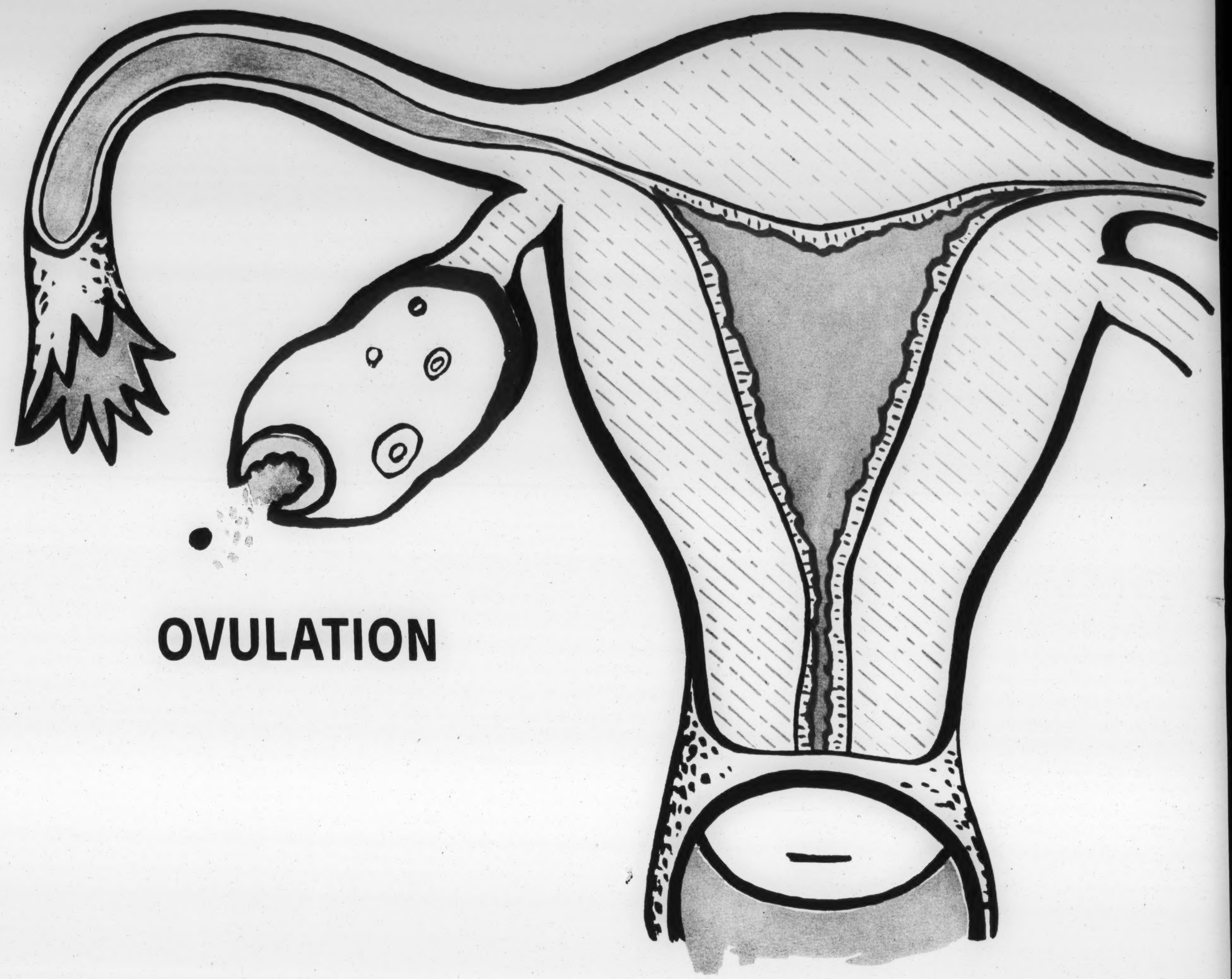

RIPE EGG OR OVUM
FALLOPIAN TUBE
FIMBRIATED END OF FALLOPIAN
LINING OF UTERUS
UTERUS
CERVIX

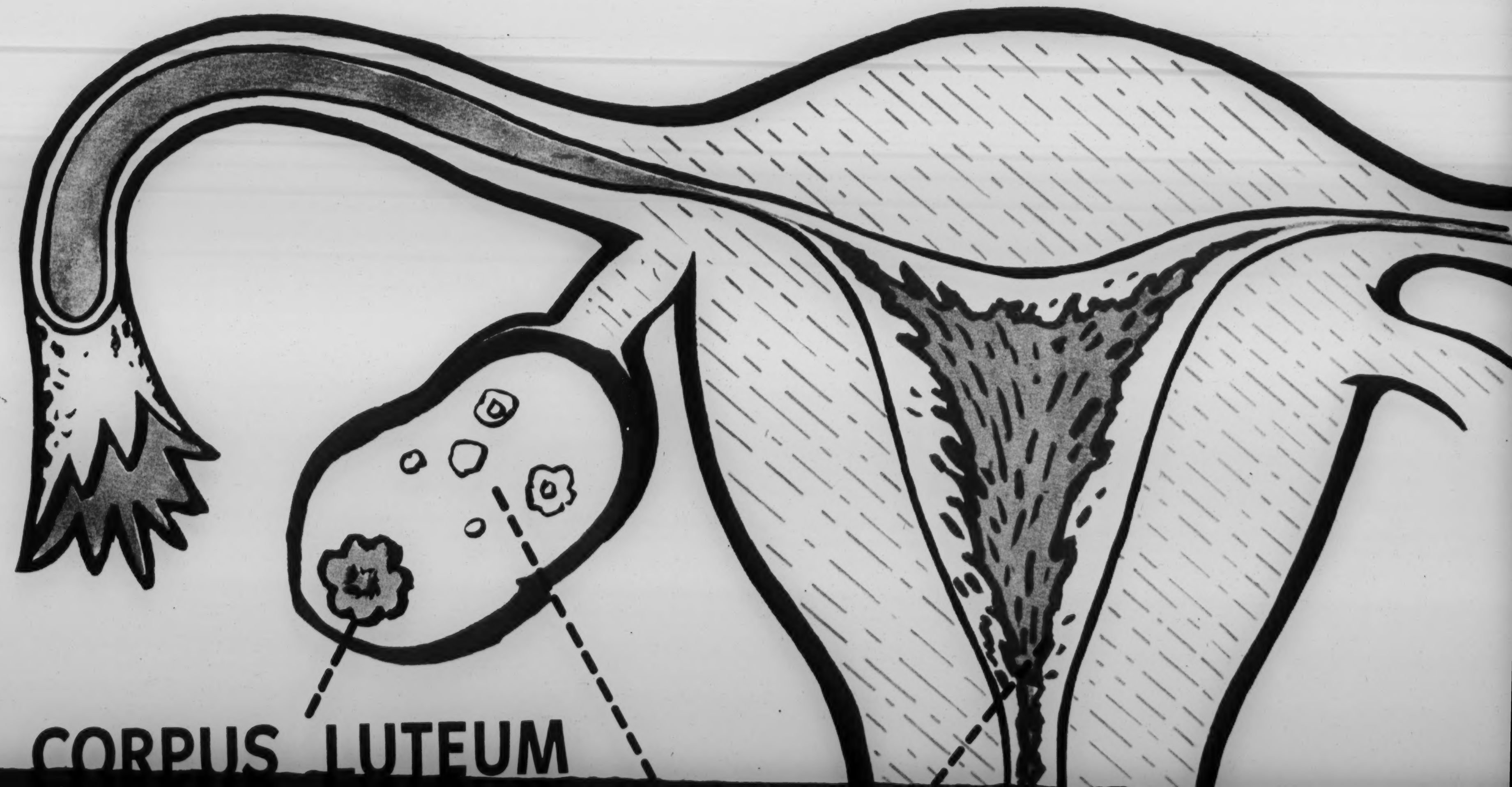
The lining of the uterus is built up between the end of one menstrual period and the beginning of the next menstrual period. This lining becomes thick with serous materials (watery fluids) and blood. The lining of the uterus has a special name. It is called the *endometrium.*

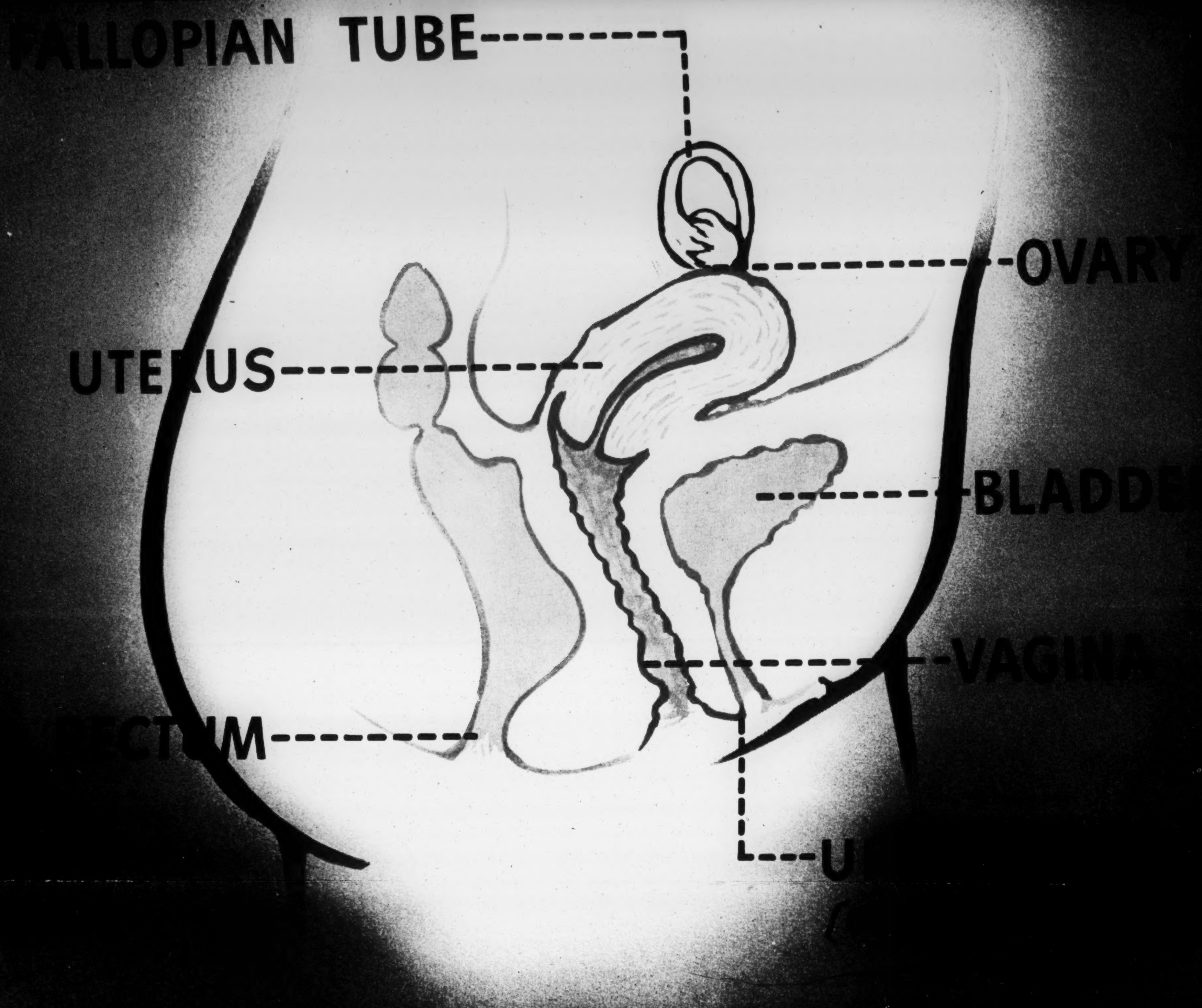
The ovaries contain the ova or sex cells of the female. As the endometrium is built up each month, several ova start to mature. One grows faster than the others and attains its full growth about midway between menstrual periods.



The particular ova that outstrips the others in growth moves toward the wall of the ovary. There it bursts out of the egg case or follicle, and is expelled into the abdominal cavity. This issuing of the ripened ovum from the follicle is known as ovulation.

The fringe-like, or fimbriated end of the Fallopian tube has an expanding and contracting motion. By this motion it draws the ripened egg from the abdominal cavity into the Fallopian tube, the passageway that extends to the uterus.


CORPUS LUTEUM


FALLOPIAN TUBE
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CORPUS

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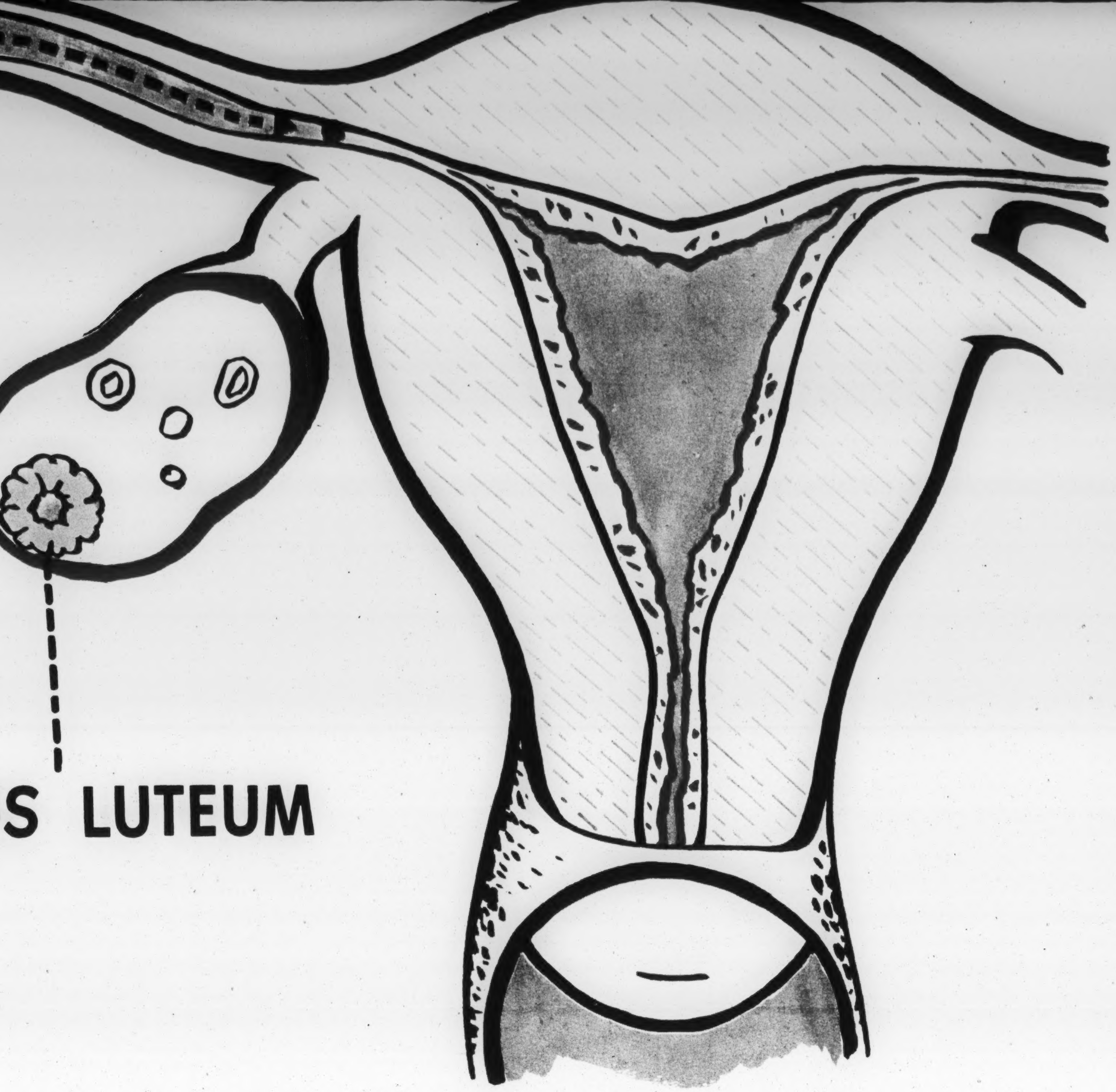
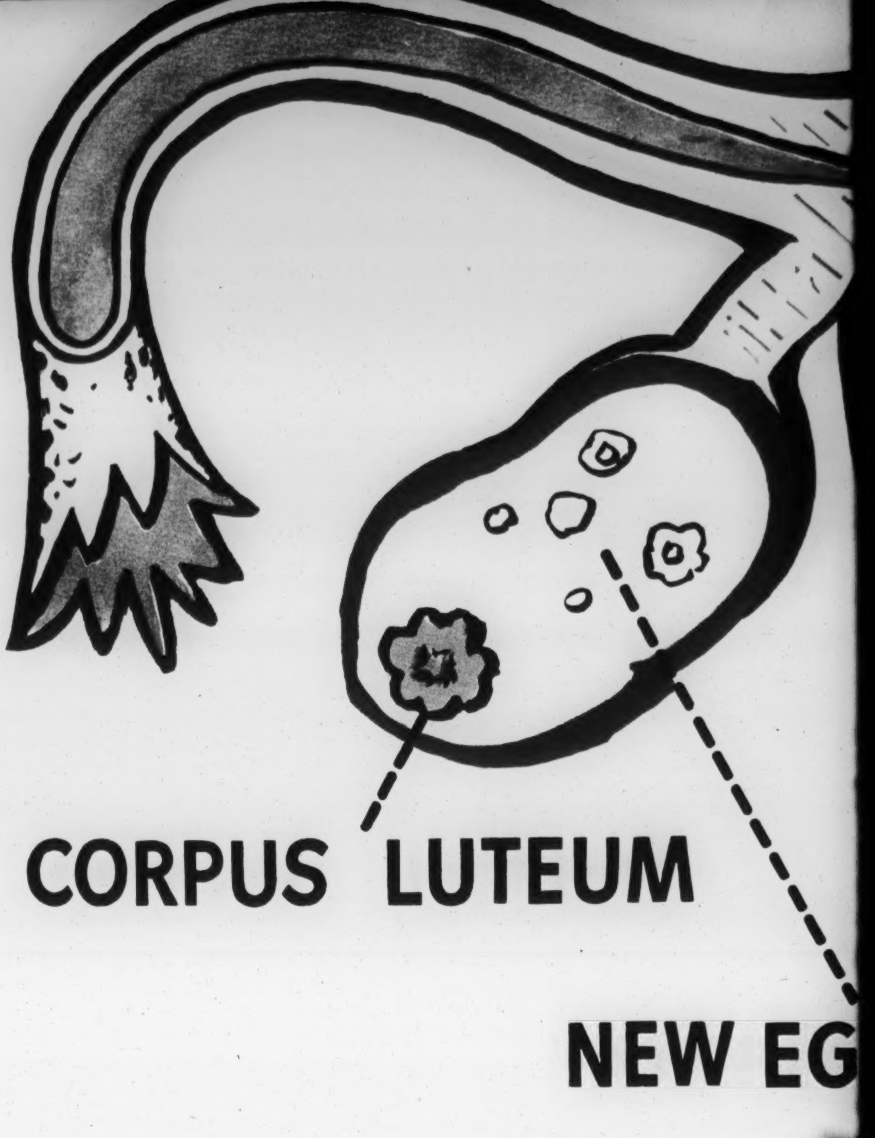


follicle, left in the ovary at the time of
growth of its own. It becomes yellow
s known as the corpus luteum. A
ted by the corpus luteum stimulates

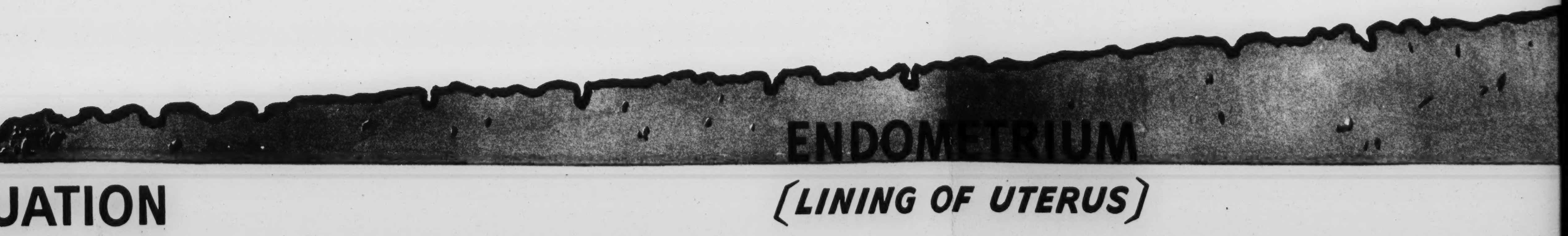
further growth of the endometrium between ovulation and menstruation. While the corpus luteum is developing, the ripened ovum is journeying toward the uterus, through the Fallopian tube.

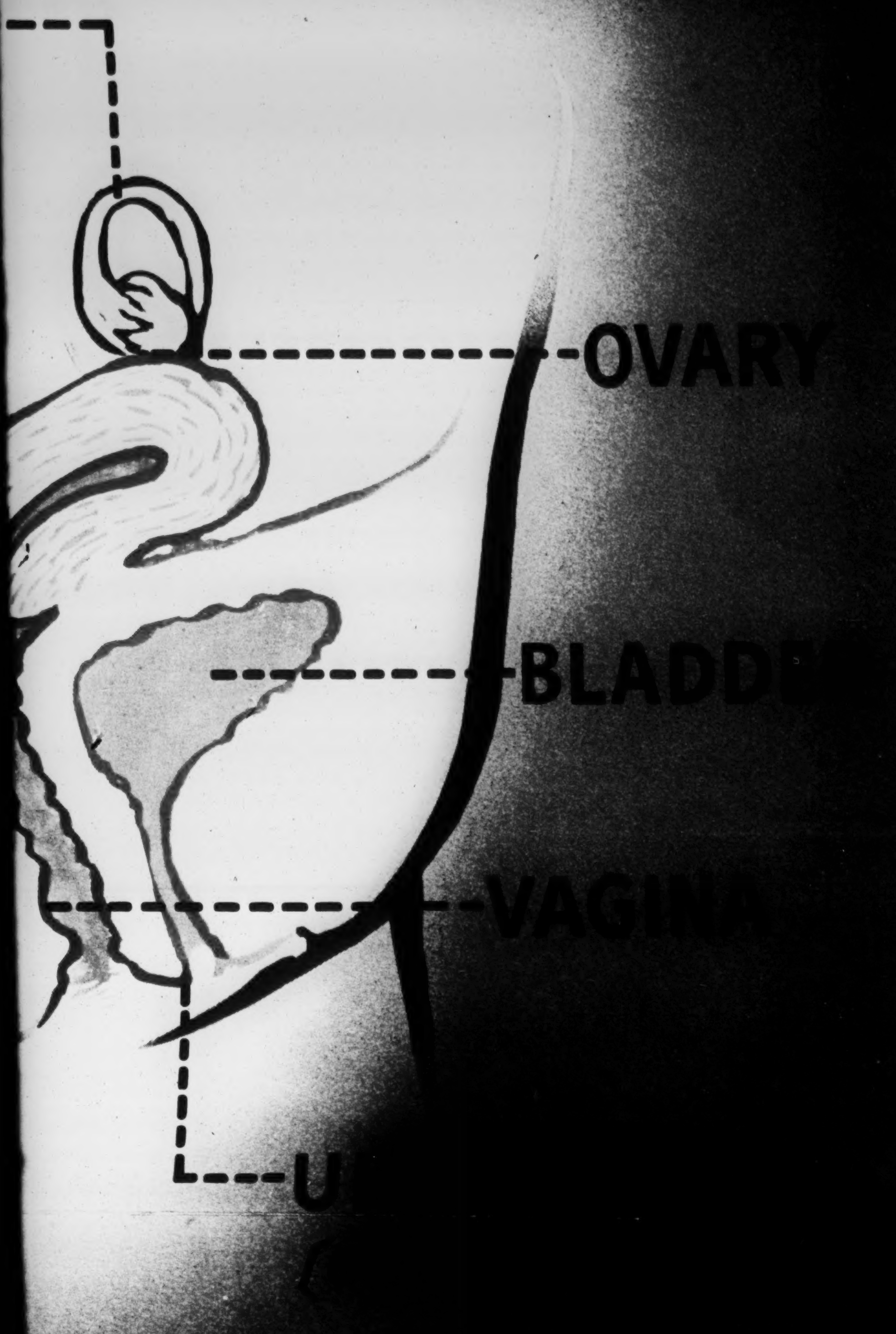

CORPUS LUTEUM
NEW EG

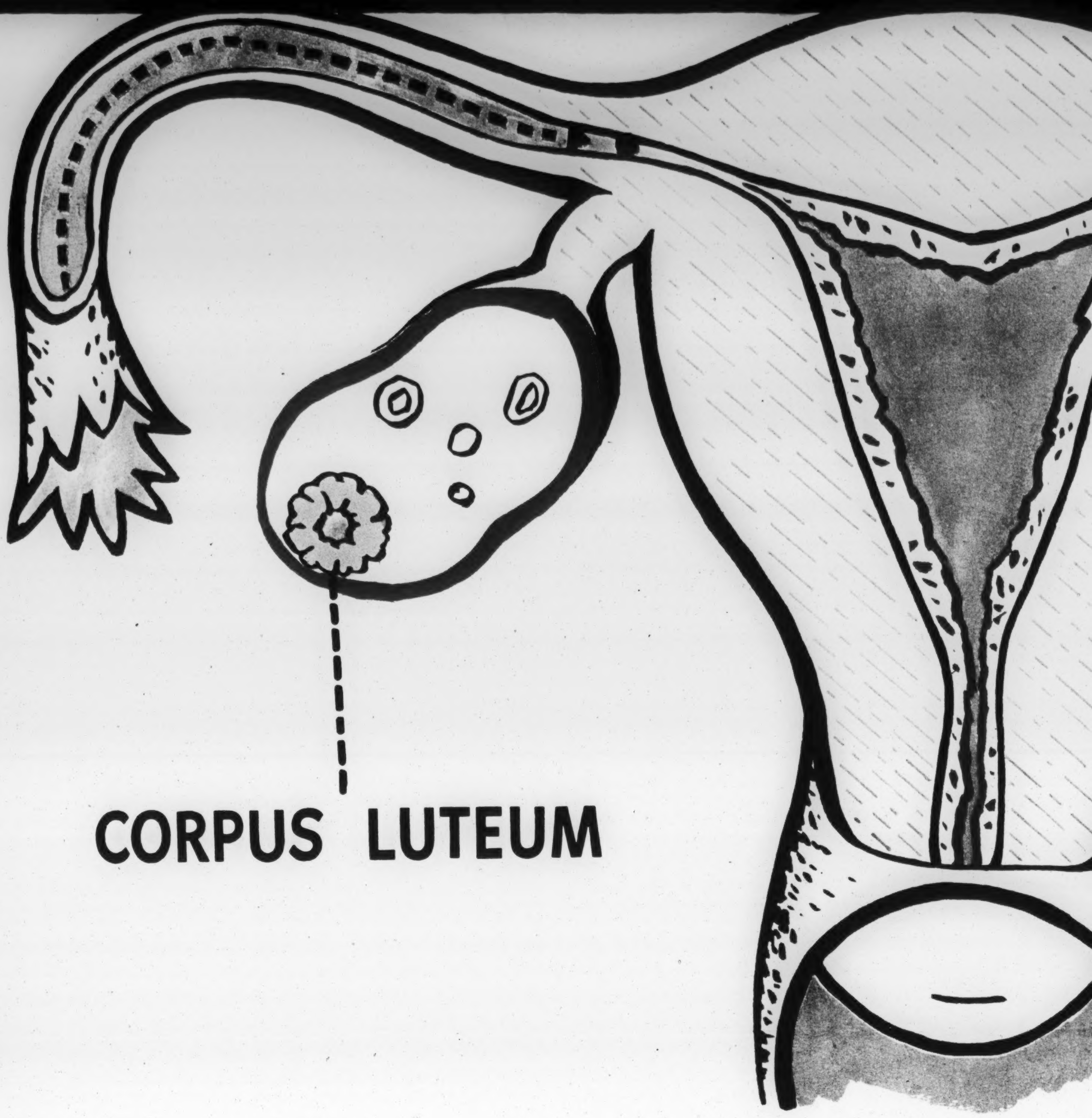
MENSTRUATION

Menstruation is really the breaking down of the endometrium. It occurs about once every month.

Just as soon as one menstrual period is over, the endometrium again starts to build up. Ova mature. Ovulation occurs. The ripened ovum makes its journey


ENDOMETRIUM
(LINING OF UTERUS)
UATION





CORPUS LUTEUM

The egg case, or follicle, left in the ovary at the time of ovulation, starts a growth of its own. It becomes yellow in color and is known as the corpus luteum. A hormone produced by the corpus luteum stimulates further growth of the endometri
and menstruation. While the corp
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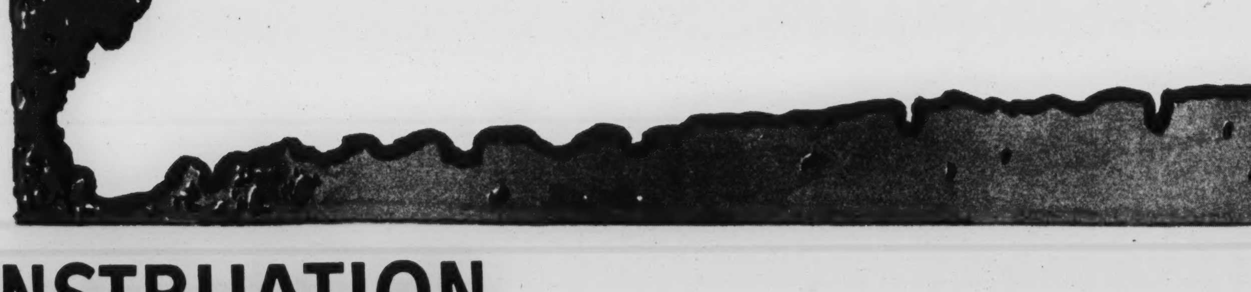
through the Fallopian tube.



MENSTRUATION

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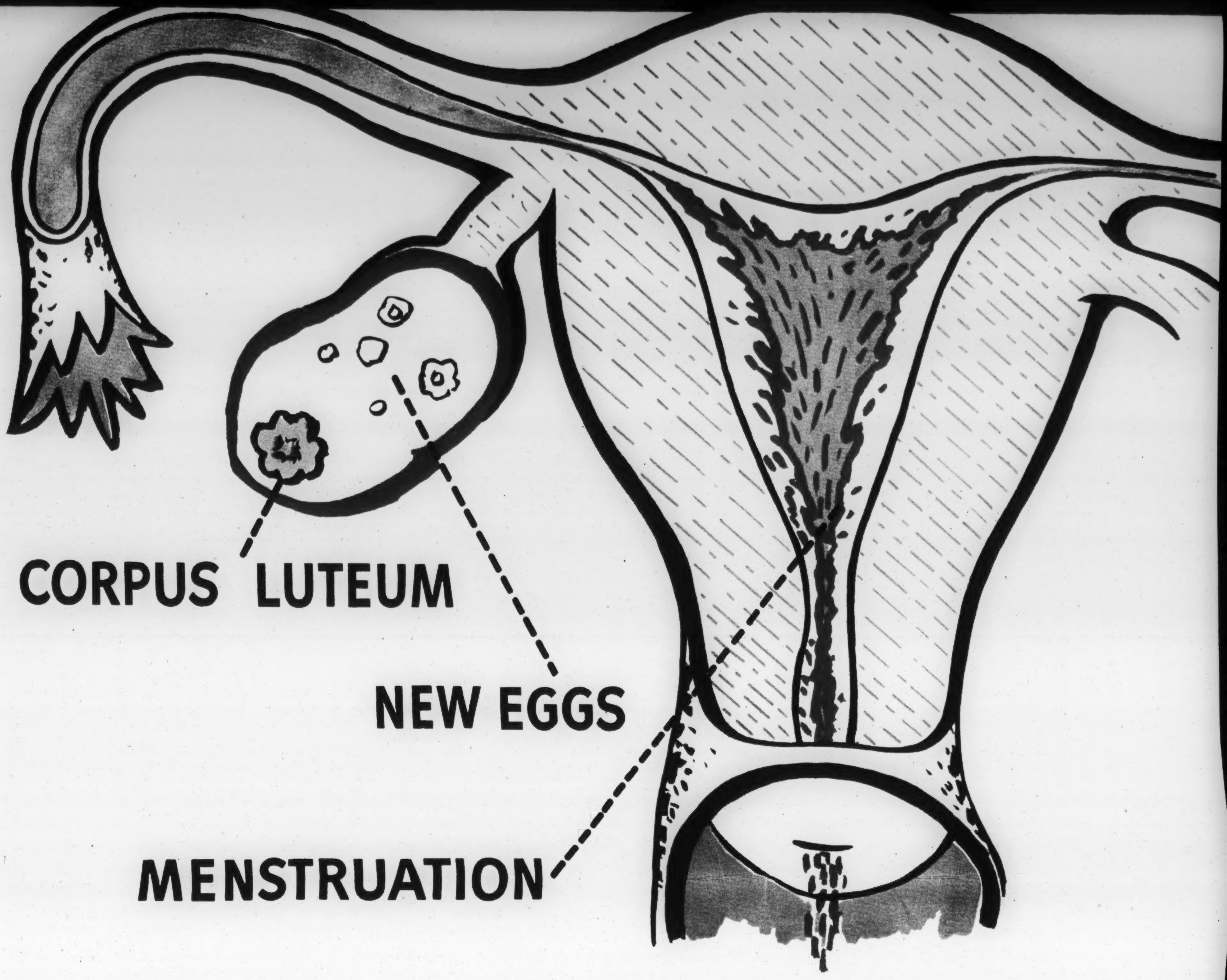
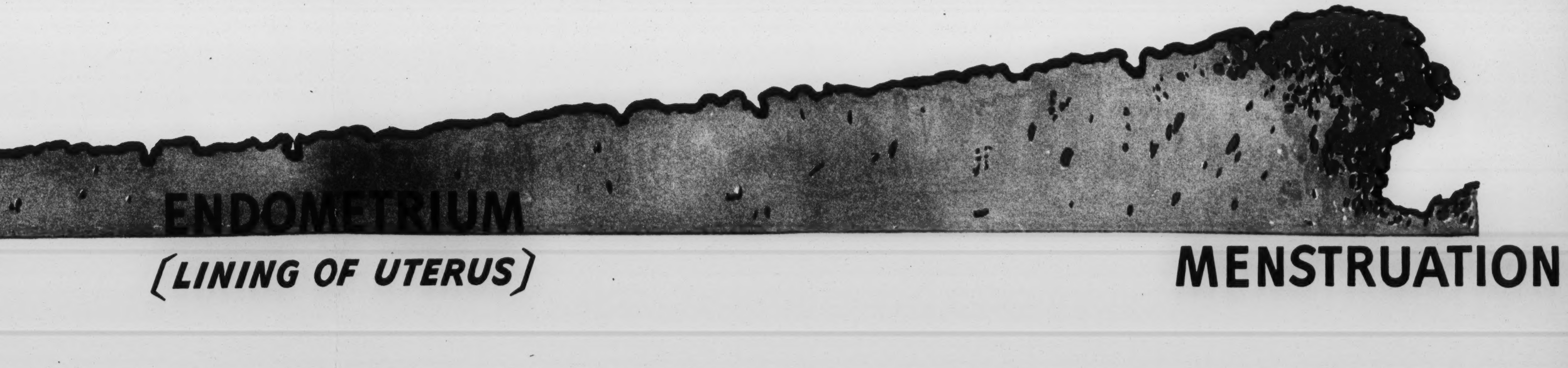

CORPUS LUTEUM
NEW EGGS
MENSTRUATION

Menstruation is really the breaking down of the endometrium. It occurs about once every month.

Just as soon as one menstrual period is over, the endometrium again starts to build up. Ova mature. Ovulation occurs. The ripened ovum makes its journey through the Fallopian tube and finally the cycle ends in menstruation. This process is continuous, occurring month after month from the time a girl starts to menstruate until menopause, the time when menstruation gradually diminishes, finally ceases.


ENDOMETRIUM
(LINING OF UTERUS)
MENSTRUATION

Reprinted from THE WOMAN WORKER, bimonthly publication of Women's Bureau
U. S. Department of Labor, Washington, March 1942

Health and Safety of Women in War Industries

A CONSIDERABLE increase in industrial injuries was reported early in the defense program. Speed-ups, lengthened hours rapidly increased forces (including new workers unaccustomed to their jobs) all have their effect in causing such injuries. The National Safety Council reported that in the first 2 months of 1941 the accident frequency rate increased by 16 percent over the same 2 months of 1940. It was estimated for 1940 that the loss through industrial injury or death was equal to a full-time year's employment for about 780,000 workers.

The British Experience, 1940.

The 1940 report of the Chief Inspector of Factories in Great Britain shows, after more than a year of war, a considerable increase in accidents over several previous years, as well as loss in production after a period of unrestricted hours (discussed on p. 12).

Fatal accidents in 1940 were 24 percent above 1939, nonfatal accidents 20 percent above. Increases in certain defense industries were even greater: Engineering, 33 percent; making of machines and motor vehicles and so forth, 47 percent. The effect of new and untrained labor, including very many women, was seen in the increase of 56 percent in accidents on milling machines, of 48 percent in those on power presses, and a decided increase on automatic lathes and drilling machines. Accidents due to loose hair and clothing increased, leading to a new campaign for the wearing of good caps and overalls and the control of loose articles of dress. A special educational campaign was begun in October 1940 and met with considerable success.

Women as the Sufferers (Michigan).

The extent ot which women suffer in the tremendous toll of industrial injury in this country can be judged only from sample data. A Michigan report gives some indication of this. In the year ending June 30, 1940, 1,400 women workers in that State were compensated for industrial injuries, 82 of them for permanent partial disability. More than 117,000 days were lost by the women, and nearly $149,000 was paid them in compensation. Of the injured women, 308 had one or more dependents.

Automobiles and foundries and machine shops—industries closely connected with war production—accounted for more than one-fifth of all the women injured and for almost two-thirds of those with permanent partial impairments. Together these two industries accounted for more than one-fourth of the total days lost and for nearly two-fifths of the compensation paid.

The great majority of the permanent injuries to women in manufacturing (90 percent in defense industries) were due to machinery. A program for prevention should include adequate guards and machinery upkeep; safe clothing, goggles, and so forth (2 women lost the sight of both eyes, 7 the sight of one eye); and avoidance of fatigue from excessive speed or long hours.

Nursing Service Needs Increase.

As industrial nurses, women may have a part in reducing the loss from accidents, especially since many serious infections can be prevented by adequate first aid. However, many plants, particularly the smaller ones, have little or no nursing service. According to the latest Census, two-thirds of the total factory wage earners were in plants with 500 or fewer employees, and a survey by the United States Public Health Service found that in nearly 90 percent of the factories of this size no nursing service whatever was available. This survey, covering a total of 1½ million workers, showed that practically two-thirds had no access to plant nursing facilities, either full- or part-time.

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U. S. GOVERNMENT PRINTING OFFICE: 1942

Reprint Recd Aug 11

Work Shoes Fill Health and Safety Need

In industry the millions of women producing war material include many thousands who have been housewives and are not used to the speed, noise, constant standing, and accident hazards presented in the factory. Attention to proper footwear for these women is most important.

No item of clothing has more to do with the safety, comfort, efficiency, productivity, and general health of workers than the shoes they wear. It is a matter of common knowledge that women suffer from many foot ailments. Among 1,000 cases seen in a foot clinic there were 15 times as many females as males. Abnormalities of the forefoot were most common. Flat feet, severe corns, ingrowing nails, arthritis were among the disabling conditions found.

It has long been noted that working women constitute the most improperly shod group in America when they are on the job, and women's work shoes have been, until very recently, the most neglected type of footwear in the country. The needs of wartime industry have focused more attention on work shoes than before. The American Standards Association has prepared standards of construction and specifications for a number of types of protective footwear for women as well as for men. The shoe and leather weekly, Hide and Leather and Shoes, conducted a study over a long period covering many phases of the situation affecting women's work shoes. The report included consumer attitudes and needs as well as the shoe-industry problems;[1] it found what work shoes women need to be effective producers of food on farms, of war material in factories, of ships in the Nation's shipyards.

Open toes and backs, high heels, flimsy materials, shoddy construction all endanger the foot and bodily safety of the wearer. Injured feet can almost always be prevented by the wearing of proper, safe shoes. Bodily injury can often be prevented by the same precaution. Foot and body fatigue is in many cases traceable to the wearing of improper work shoes, and any woman's shoe that does not provide safety is not a suitable shoe for work wear. Exploitation of flimsy play-shoes for work wear should be stopped. Exploitation of such shoes for wear at work in war industries where foot hazards are greater than normal is nothing short of criminal.

The specifications of a safe work shoe for women cannot be summed up in a single code. The shoe that is entirely safe and satisfactory for one occupational condition may be dangerous for another. Occupational conditions must be studied carefully when recommending any work shoe for women.

In 1 out of 10 occupations a safety-toe shoe (usually fiber or plastic toe box) is essential; in the other 9, shoes with other types of foot protection or safety details are desirable. For many jobs the best shoe is a well-fitted oxford with low, broad heel.

Special features that may be needed in shoes for specific women's occupations include these:

Types of platforms and wedge heels devised to give adequate support without the use of steel shanks and to provide cushioned comfort on cement floors and wood floors. Platforms of felt, cork, composition or new cork compound, covered with leather, to insulate against heat and cold.

Full chrome-tan leathers treated for resistance to oil and damp with oils as used by the Army; all selected for firm yet flexible texture, and finished with coating film of lacquer to prevent penetration by slivers of metal.

Wood soles for work exposing the shoe to acids.

Steel safety toe box for heavier work.

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[1] *A summary of the study will be published and will be available from Hide and Leather Publishing Co., 300 West Adams St., Chicago, Ill., at 15 cents, less in quantities.*

Labor Information Bulletin July 1943, Vol. 10, No. 7

541209° U. S. GOVERNMENT PRINTING OFFICE: 1943

· MAGNUS TECHNICAL BULLETIN ·

No. 51

The Care and Cleaning of Hands and Arms in the Industrial Plant

The Care and Cleaning of Hands and Arms in the Industrial Plant

Introduction

Safety directors, industrial physicians and insurance companies have all become concerned over the high incidence of industrial dermatoses. Available statistics from England and Germany before the War show figures not materially different from those for the United States. This data indicates that a factor of 65% may be taken as an approximate measure of the occurence of industrial dermatoses in the complete list of compensable occupational diseases. These figures apply to the prewar period. The rush of emergency production and greatly expanded utilization of untrained personnel has increased them materially, rather than decreased.

The literature of industrial safety has given much attention to the problems of prevention and protection from the viewpoint of poisonous, irritating or otherwise harmful process materials, hazardous operations and unsafe surroundings. But, in view of the fact that so much lost time and compensation due to occupational disease is caused by dermatoses, it seems desirable to give special attention to those parts of the body which are most frequently in contact with harmful substances or are exposed in other more frequent ways to the hazards which lead to dermatoses.

The hands and arms of industrial workers are not only more frequently exposed but, because of the extent to which they are soiled during working operations, the problem of cleaning them becomes one deserving the full attention of those concerned with plant safety. This is true for many reasons, not the least of which is the danger of infections and damage caused by the use of unsuitable washing materials and methods. This bulletin concerns itself with the major problem of hand and arm cleaning. It also covers protection of hands and arms during working hours, not only to simplify the cleaning operation, but to afford any additional protection that may be provided against contact with harmful substances and against infection from cuts, abrasions and irritated areas of the hands or arms.

MAGNUS AND THE CLEANING OF HANDS AND ARMS

THE ESSENTIAL PROBLEM

What is this problem of cleaning hands and arms in the industrial plant?

To make the issue clear, let us dispose at once of the confusion which follows any attempt to lump together the hand and arm cleaning problem of the office or the home with that of the factory. Except for the comparatively rare occasions when a typist or stenographer gets her hands very dirty in changing a ribbon or adjusting a mimeograph machine, the dirt on the hands of office workers is not heavy or difficult to remove. In the home, except when Dad (and once in a while Mom) investigates the interior mysteries of the car or vacuum cleaner--or perhaps undertakes a bit of painting, hands may seem dirty enough, but actually are relatively easy to clean.

In the industrial plant, however, the dirt is not only more complex, including the almost invariable presence of grease or oil, but the dirt particles are always more deeply embedded and therefore much more difficult to remove. Industrial dirts, moreover, often tend to be more irritating or harmful. They also harbor more bacteria or spores. Besides, it has long been recognized that cutting or lubricating oils based on animal fats such as lard provide an ideal breeding media for the staphylococcus germ.

"DIRTINESS"

Of course there is a wide range in the degree of "dirtiness", depending on the type of work done. A lathe hand or a fleet garage mechanic gets very dirty hands and arms, with a great deal of grease and deeply embedded metal and dirt particles. This condition applies to metal and machine workers generally and is complicated by the inevitable scratches, abrasions and cuts which are usually factors, both in the safety of cleaning and in the incidence of infections. Callous points on hands and fingers, developed by the motions and contacts of the job, are particularly troublesome. Cracks or abrasions tend to occur and recur at the juncture between the calloused skin and the normal surface, which are particularly effective foci of infection.

The hands of the battery repair man get very dirty--but he also has to face the added hazard of frequent contact with battery acid, resulting in skin surfaces which are extra tender and hence harder to wash safely. The whole problem of hand cleaning is always complicated where the worker regularly has to expose his hands to acid, alkaline or other harmful fluids--including long exposure to water, with or without soap or added chemicals.

Workers who assemble mechanisms have greasy, dirt-embedded hands and arms to contend with, as well as those who produce the parts. Those who lacquer-finish metals or other materials have a hard hand cleaning job to do---not solved by the use of solvents which are hard on the skin. In all these cases the tendency toward creating extra sensitive skin must not be overlooked.

WHAT KIND OF CLEANING IS INVOLVED?

It is possible to examine the nature of the cleaning problem imposed by these many kinds of dirt and to plan the specifications of a safe hand and arm cleaner to meet the majority of conditions. Moreover, by suitable modification and the provision of a moderate range of types, the inevitable condition of sensitive and extra sensitive skins can also be met. Let us take a good look at the chemistry and mechanics of skin cleaning, as far as it concerns the arms and hands.

Here is an extensive surface of the human skin, hairless and toughened chiefly on the palms of the hands, and relatively tender and covered with hair follicles everywhere else.

The dirt to be removed is never concentrated on the tough palmar surface, but is liberally distributed over the entire area. It is not necessary to consider the nature of the dirt too closely. This dirt will usually be oily or greasy and the dirt particles will not be bound only in a matrix of oil or grease which in turn covers the skin, but will be embedded and fixed to a considerable extent in the skin itself. This makes it much more difficult to remove. The inevitable presence of bacteria, spores and fungi in most of these dirt deposits should not be overlooked either.

How to remove this deposit? To take one extreme of the picture, it is conceivable that the dirtiest and greasiest of hands could be cleaned completely in time by persistent scrubbing in plain water. This is, of course, impractical. We must use some kind of cleaning agent to clean these skin surfaces, and therefore naturally turn to soap.

SETTING UP THE SPECIFICATIONS FOR AN IDEAL HAND CLEANER

In the following pages we have set up in detail the various functions which an ideal hand cleaner should perform, pointing out the importance of each. Then, at each step in the procedure, we show you how Magnus has utilized its broad experience in the field of industrial cleaning and the facilities of its research laboratory to provide ingredients in Magnus Hand Cleaner which meet these required functions exactly.

SOAP

Soap as commonly used is a relatively simple chemical---fundamentally an alkaline salt of a fatty acid.

These alkaline salts of fatty acids have the unique property of partially breaking down in water solution, through hydrolysis, to free a small proportion of the alkali in their make-up. The corresponding fatty acid, freed at the same time, appears to become absorbed by the soap proper to form a colloidal acid soap which apparently has a highly important function in the cleaning action of the soap solution. The freed alkali makes its presence known by imparting a definitely alkaline reaction to the soap solution. In fact, a perfectly "neutral soap" will, in water solution, show a pH of about 10.5. A "neutral" soap is one in which alkali and fatty acid are combined in exact chemical proportions so there is no uncombined excess of either. But due to hydrolysis, all ordinary soap solutions will contain a small amount of free alkali, which will act as such, within the limits of its concentration, even in the case of neutral soaps.

Free Alkali

One might suppose that the cleansing action of ordinary soaps on grease and oil would be explained chiefly by the effect of this free alkali in solution, but this is not so. There is not enough alkali to do this job, particularly when you remember that the soap solution developed by the normal use of soap in hand cleaning is very weak at best, rarely exceeding a concentration of 1½% of soap. Moreover, this soap is only hydrolyzed to the extent of a few percent.

As a matter of fact, the actual effect of soap as a cleaning agent is not free from obscurity even today. One of the most widely accepted theories puts much of the credit for cleaning on the colloidal acid soap formed by the reaction between hydrolized fatty acids and the soap proper.

Unquestionably, the freed alkali has a place in the picture, proven very definitely by the fact that when more alkali is added to a soap, its cleaning effectiveness increases. Note, however, that this does not apply to an unlimited amount of added alkali. Beyond certain limits, increased alkalinity reduces, rather than increases the cleaning powers of a soap solution.

Ineffectiveness of Plain Soap

If a simple neutral solution of soap, with its small amount of freed alkali could do a good cleaning job on hands and arms soiled with industrial dirts, a difficult problem would no longer exist. The fact remains, however, that such solutions cannot be effective on industrial dirts. The use of such solvents as turpentine and naphtha prior to washing with soap, highly undesirable as it is, often is made necessary by the provision of inadequate hand washing materials in a plant washroom.

The average worker does not want to spend extra time in washing up. If the soap provided does not do a thorough job quickly, he is apt to get his own cleaner and do his washing with that. Perhaps the chief reason for the wide use of highly abrasive hand pastes which are demonstrably hard on the skin, is this factor of time in hand and arm washing.

The soap used in Magnus Hand Cleaner is a neutral low titer vegetable oil soap selected because of its high solubility and superior rinsing properties. It provides maximum wetting action and detergent action as far as a pure, carefully compounded soap can go. It is equal in quality to the best grades of hand soap sold for home consumption.

But, as pointed out above, plain soap, however high its quality is not adapted to the job of cleaning industrial hands and arms. That is why Magnus Hand Cleaner contains other ingredients.

We cannot solve this problem by turning to a soap containing caustics or a high free alkali content, because the element of safety would be immediately sacrificed. Yet added alkalinity is an essential factor.

Hence, we have to add sufficient alkaline content to the soap to make it adaptable to the dirts and greases encountered in the industrial plant consistent with safety.

A vitally important function is the provision of scouring action. The fact that so much of the dirt is embedded in the skin makes it essential that this scouring action be provided if the cleaner is to be both effective and speedy. It is true that a great many of the scouring agents used in hand cleaners are dangerous, but, as will be subsequently developed, there are materials which do the required job without harmful action.

Then there is the question of adding emollients, germicides, medicaments, or other ingredients to the compound. This seems to be a subject on which there is wide disagreement among physicians and technical men. It will be discussed in the following pages.

ADDING ALKALINITY

Insofar as added alkalinity goes, there is no question that an effective hand soap for industrial use must provide more alkalinity than is made available by the hydrolysis of the soap. This additional alkalinity is needed, not only to supplement the very limited emulsification of grease which normal hydrolysis of neutral soap solution provides, but to provide for the speedier penetration of deposits and dispersion of foreign matter which is an essential part of this cleaning operation. Without it, the time of contact with the cleaning solution would be prolonged and excessive scrubbing--usually with a stiff brush--would be required. Much dirt also, is of an acid nature, requiring neutralization to avoid "killing" of the soap. Brush scrubbing is to be avoided, of course, since it constitutes a constant threat of irritation and abrasion to the skin.

Strong Alkálies to be Avoided

Strong alkaline action is extremely harmful to the human skin. In providing added alkalinity, careful control must be exercised, so that maximum detergent action is provided, without reaching anywhere near the zone where alkalinity will have a deleterious action on the skin. Moreover, in spite of the fact that the skin of hands and arms of many of those engaged in industrial operations tends to be tougher and less sensitive than that of the average human, this is not generally true. In fact the addition of alkaline action should be provided in a graded series of cleaner types, so that for those whose skin is or has become unusually sensitive a cleaner is made available which gives as much additional alkalinity as is safe for their specific conditions.

Remember that in all of this cleaning action, it is vital that it shall remove dirt deposits, without robbing the skin of its natural fatty protective substances. Otherwise you have the familiar tendency of chapping and cracking which must be avoided at all costs, particularly in cold weather. Hence, the choice of the ingredients to provide additional alkalinity is very important. Strong caustics are, of course, out, and there are many other ingredients affording alkalinity in water solution which are unsuited for use in hand cleaners because they form solutions which tend to attack these fatty protective substances of the skin. Care must be taken to use only those chemical ingredients which avoid such attack.

Therefore, added alkalinity should be obtained from alkaline salt mixtures which give a low alkalinity at a controlled concentration within safe and effective limits. These salts, when properly selected, function automatically. That is, they hydrolize gradually and progressively at rates dependent upon their chemical composition.

The materials used to provide for added alkalinity in Magnus Hand Cleaner have been selected for their ability to supply this needed extra alkaline action at a rate which insures the maximum safe alkaline action as needed by the particular pair of hands being washed. In other words, for hands that have highly acidic greases or dirt on them, these added ingredients will free alkalinity faster to compensate for this condition. But the same hand cleaner, with the same amount of added materials will not free alkalinity as rapidly in the washing of hands where there is no acid condition to be met.

We have now arrived at that point in these specifications where, by adding alkalinity for maximum available emulsification, we have provided for effective penetration, dispersion and loosening of dirt deposits. Note that ordinary soap provides effective wetting action to insure the first step of all cleaning--the breaking down of the boundary between the cleaning fluid and the top surface of the dirt. Wetting action is also important in rinsing.

SCOURING ACTION

So far we have a compound capable of doing a good part of the cleaning job, but is the resulting cleaner fully adapted to the job of cleaning industrial hands and arms? The answer is an emphatic "no".

The reason is, that what we have, is a solution which wets and surrounds the dirt which is not embedded in the skin and emulsifies the grease and oil. Rapid, effective cleaning, particularly of hands and arms soiled with industrial dirts presupposes as fast a cleaning job as possible, to avoid too long a contact with the detergent solution. It is true that by continued scrubbing with a soap solution carefully compounded along the lines discussed above, the embedded particles could be finally dislodged and a satisfactory degree of cleanliness obtained. But, prolonged mechanical scrubbing is as much to be avoided as too extended contact with the cleaning solution. And, as has been noted above, workers would not take the time required. The only effective answer is the use of a suitable scouring agent in the cleaner, to break down dirt aggregates, and to loosen bonded dirt from the skin. The possibility of providing an agent which could eliminate the need for scouring by absorbing dirt must be discarded--not only because this scouring action is essential in itself, but because there is not time enough in normal hand washing for absorbing action to become effective.

This subject of scouring agents is sufficiently important to deserve careful consideration. Practically every industrial hand cleaning compound on the market contains such an agent, with the exception of the ineffective liquid soaps still to be found in many plants. Yet many of the scouring agents used are harmful to the skins of most users.

Harmful Abrasive Action

Harmful abrasive action is not due to hardness alone. Particle size and above all, the shape of the particle are fully as important. For example, jaggedly irregular crystals of silica sand, whether used in a size of 40 or 200 mesh, are strongly abrasive, while the globular particles of common clays have a smooth, uniform and mild wearing action which is scarcely to be identified as abrasion.

Included in the scouring agents used in hand soaps are silica sand, tripoli (about 98% silica, resulting from the weathering of certain rocks), feldspar (a hard complex silicate usually mined with considerable silica content) -- all having a high degree of hardness, and the characteristic of being shaped in angular or jagged form, even after grinding. These materials are also non-friable. In other words they resist cracking and breaking off of projecting edges, so that there is no tendency to minimize harsh abrasive action by progressive breaking down during use, as is the case with friable materials.

It is the use of such materials in hand cleaners which has caused so much trouble in the past. In fact, the words "sand soap" are still used as a descriptive term to cover all kinds of hand cleaning compounds based on a silica content. Even if the greatest of care is devoted to the compounding of such soaps, the ultimate effects are bound to be harmful, because of the harsh action of the hard, rigid, sharp silica particles which are called upon to supply the required scouring action.

H.J. Dennison says in an article on paste hand soaps in a recent issue of "SOAP" -- "Of all the soap products on the market today the average abrasive hand paste is probably manufactured with less attention to scientific detail than anything else. The reason is that there are hundreds and hundreds of brands of hand pastes made and sold locally by small firms and individuals, who do not have the knowledge for correct composition or manufacturing method.

"Because of the way in which these paste soaps are used, quality differences may go unnoticed for a long time. A sharp difference in price, however, is always something that stands out. It will not be until the buyer notices that the cheap products are very poor in detergency or cause his hands to chap and crack, that he will be inclined to pay a higher price for better soap. Undoubtedly this feature of the hand soap market is what has made possible the survival of hundreds of poor products."

Safe Scouring Agents

Other scouring agents include diatomaceous earth, infusorial earth or kieselguhr (derived from microscopic single celled plants called diatoms), clays of various kinds, chalk, talc and soapstone. They have the common characteristics of being comparatively soft and of having such shape as to possess a mild abrasive action. For certain cleaning applications some of them are well suited, but for the specific task of supplying the scouring action required in cleaning industrial dirts from hands and arms, they cannot be regarded as effective.

Vegetable Type Agents

Because of the condemnation extended to sand soaps by industrial physicians, who recognize the results of skin irritations and subsequent infections following their use, in spite of their cleaning speed, the search for more suitable scouring agents have finally centered on two other materials. One of these is vegetable in origin, usually corn meal.

For the mildest degree of dirtiness, corn meal is far from unsatisfactory, though there is a marked prolongation of the time required for cleaning very dirty hands. For such hands and arms, particularly those met with in machinery and metal plants and automotive work, the vegetable type of scouring agent such as corn meal or sawdust has not met with wide acceptance, chiefly because its scouring action is not strong enough.

Corn meal provides effective scouring action, as has been noted, where the degree of dirtiness--and particularly of deep embedding of dirt particles is not excessive. It is not unduly hard and although it possesses a jagged shape and is not friable, it is not to be regarded as excessively abrasive. Where it supplies a strong enough scouring action to do the job it is a safe and effective agent for use in hand cleaning compounds.

There is some indication that in certain types of drainage systems the action of water on the vegetable grains tends to swell them and develop a sticky condition which leads to clogging. Some hand soaps based on corn meal have tended to develop maggot or worm infestation. By and large, however, the corn meal type of hand soap is satisfactory on the mild end of the dirtiness scale.

Pumice

Pumice is the other effective and safe scouring agent.

Pumice is unique in its texture. It is volcanic lava which has been rapidly cooled and hardened so that an infinite number of cavities which were formed by trapped microscopic bubbles of gas during cooling are present in the hardened lava.

Not all pumice is suitable for use in hand cleaners. Many grades of pumice contain a high percentage of hard, jagged quartz crystals, which make them highly undesirable. Others are not sufficiently vesicular in texture. The proper grade for the purpose has so many vesicles or cavities caused by bubbles of escaping gas during the rapid hardening of formation that the material is exceedingly friable, although its intrinsic hardness is relatively high. It should contain no quartz crystals, or crystals of any kind. It must be free of organic matter and have a fairly uniform chemical composition, free from iron. It should, finally, be extremely light in weight.

It is the property of friability which makes pumice so well suited for use in hand cleaners. In other words, it breaks down into smaller particles under moderate pressure.

A silica particle, under the pressure obtained by the usual rubbing action in hand and arm washing, retains its sharp jagged form and is always able to scratch and abrade the skin. The pumice particle is hard enough to do the necessary job of cutting through deposits and removing embedded dirt particles from the skin, but before it shows any tendency toward scratching, it breaks down, because of its friability. The edges of the particle crack off readily under the pressure developed by the normal washing operation, so that at no time is there any action similar to the scratching or abrading of a jagged sand particle. This progressive breaking down of the particle at the edges continues as long as the washing motion continues. It is no happenstance that pumice has been a well regarded toilet accessory for as far back as the records go.

Pumice thus insures really effective scouring action with no tendency toward abrasion or scratching of the skin and imparts to a hand cleaning compound an ability to do a quick, thorough cleaning job on the dirtiest hands without any necessity for scrubbing.

Pumice or Vegetable Type?

When there is a question of choice between vegetable and pumice type hand cleaners, the decision becomes one of meeting circumstances. For the least dirty hands, vegetable meal type cleaners based on corn meal or sawdust will prove highly satisfactory. As the degree of dirtiness and extent of embedding increases, the vegetable type drops off in effectiveness and the pumice type becomes more and more desirable. For varying degrees of sensitiveness and of dirt, a range in the intensity of scouring action is readily provided by grading of particle size. In the great majority of cases, three grades of pumice type cleaners based on particle size will meet all requirements--and except for rare cases of exceedingly tender skins, cover the entire range of dirty industrial hands and arms. Finally, pumice is so low in specific gravity that it does not tend to settle out in the drains. Instead, it is readily carried off by the rinse water. Its porous make-up, even in the finest particles, tends to absorb and hold dirt, without swelling or becoming sticky.

Because the pumice type of scouring agent meets most industrial hand cleaning needs, the standard type of Magnus Hand Cleaner is based on the use of the highest grade of pumice, carefully selected and graded to meet the specifications outlined above. The pumice in Magnus Hand Cleaner is completely free of silica and quartz crystals and is bought on specifications which insist on the maximum degree of vesicular structure which insures the greatest possible friability.

For extra tender skins, the pumice is ground and sized to very small particles and used in the Extra Mild grade of Magnus Hand Cleaner. The pumice used in the Regular grade of Magnus Hand Cleaner is somewhat less finely sized, while that in Heavy-Duty Magnus Hand Cleaner is considerably coarser and intended for use where embedding of dirt particles is most acute.

The favorable properties of corn meal for some conditions has been recognized by the addition of Magnus Hand Cleaner, Vegetable Type, to the line. This cleaner is similar in all other ways to the standard Magnus Cleaner, but contains corn meal as a scouring agent.

So far our specifications for an ideal hand cleaner include properties that will penetrate and dislodge dirt particles, emulsify oils and greases and insure removal of embedded dirt without need for prolonged washing or scrubbing and without danger of scratches or abrasions.

EMOLLIENTS AND SIMILAR ADDITIONS

It would seem highly desirable that at the time hands are being washed, emollients and soothing ingredients should be utilized. The difficulty with this idea is not in its desirability, but in its effectiveness. There are two opposed and apparently irreconcilable schools of thought. One says that by incorporating the soothing and emollient action of a variety of ingredients, a definite plus value is added to the hand cleaner. The other says that the whole idea is impractical, since the soap content of the cleaner tends to wash off the emollient during the period the cleaner is in use, with the result that very little, if any, emollient is actually introduced into, or left on the skin when washing is completed. They insist that if emollient action is desired, the logical way to obtain it is to apply suitable materials after washing.

Magnus Hand Cleaners do not contain such emollient ingredients, in view of the differences of opinion mentioned above.

GERMICIDES AND MEDICAMENTS

Here too, there is a sharp difference of opinion. One school claims that properly selected germicides and medicaments not only have a place in compounding hand cleaners, but accomplish measurably effective results. Remembering that the concentration of the soap solution commonly obtained when hands and arms are washed is not much more than 1% and that the concentration of the germicide or medicament in the soap itself cannot be very high, it would seem that medication or germicidal action from such soaps would be somewhat doubtful.

In the May 1941 issue of "SOAP" an article on the subject of medicated soaps contains the following statement: "it must be admitted at the outset that it is very doubtful whether or not medicated soaps have any real value apart from their ordinary cleaning properties. Not only is soap a bad vehicle for substances which have to be absorbed by the skin, but its very nature tends to prevent entry of the medicament, as it would keep it in suspension or solution--only to be removed in rinsing. In any case the amount of medicament which comes into contact with the skin at each washing is very small while the period of contact is a matter of seconds only."

E.G. Thommsen, an American authority on soap making, states in his "Soap Making Manual":

"Soap is often used for the conveyance of various medicaments, antiseptics or other materials presumably beneficial for the treatment of skin diseases. While soap is an ideal medium for the carrying of such materials, it is an unfortunate condition that when incorporated with the soap, all but a few of the numerous substances thus employed lose their medicinal properties and effectiveness for this purpose, as well as any antiseptic value the substance may have.

"Soap is of such a nature chemically that many of the substances used for skin troubles are either entirely decomposed or altered to such an extent as to impair their therapeutic value. Thus many of the claims made for various medicated soaps fall flat and really have no more therapeutic or antiseptic merit than ordinary soap, which in itself has certain germicidal value."

Sterilization

As a matter of fact, if the skin is free of cuts and abrasions, there is no point in attempting to kill the germs on the surface anyway, because sterile hands or arms will remain sterile only for a short interval after they are rinsed. They begin to become contaminated virtually from the time they are touched by a towel.

Thorough washing with any good hand cleaner will remove all harmful bacteria or spores.

Where the skin is cut, abraded or irritated, as is often the case, a good hand cleaner is equally effective in removing germs. Thorough cleaning with a safe hand cleaner can be followed by local application of germicidal preparations in efficacious concentrations to avoid infection or spread of existing infection.

Magnus Hand Cleaners contain no germicides or medicinal agents.

If germicidal action is desirable, the hands should be treated with a safe agent in effective concentration after washing.

RINSING

Specifications are now complete for a fully effective hand cleaner, with one exception. That is the rinsing ability of the compound. Obviously there is not much use in planning for non-irritating action in a hand cleaner if rinsing is so ineffective that residues are left on the hands. Since even a pure neutral soap develops some alkalinity in solution, the presence of a residue of soap solution on the skin would prove irritating, particularly in cold weather.

Hence a good hand cleaner should be made up of soap and other ingredients which rinse off readily and quickly, without leaving a trace of residue. This rinsing should be gauged--not on hot water, but on cold water, because you have no guarantee that hot water, though available, will always be used for rinsing.

Not all soaps are quickly and thoroughly rinsable. Nor are many of the ingredients added to hand cleaners. Make sure that the hand cleaners used in your plant wash rooms are of the free rinsing type.

Lime Scums and Rinsing

An interesting point arises in connection with rinsing and with the relative alkalinity of hand cleaning materials. Recently, some tests were conducted by the medical department of a Mid-western University in order to investigate the bacteria carrying and nurturing properties of the lime-soap scums formed by ordinary soaps in hard water.

As you know, the reaction between the lime in hard water and soap solutions forms the scum we are all familiar with in the bath-tub, which marks the "high-water mark" after a bath.

This scum forms in all hard water and the investigation was undertaken to see whether or not there was any connection between certain cases of infection of the skin and this scum.

They worked with staphylococcus albus, commonly plentiful at the roots of the hair in most normal skins. First, it was developed that a lime soap precipitate from hard water, into which staphylococcus albus was introduced could be cultivated for over 20 days with no marked reduction in vitality. Yet staphylococcus albus dies very quickly in ordinary soap solution.

It was further developed that infections could result from a combination of staphylococcus albus in lime soap scum in contact with the skin. Patch tests were made, first on cultures of staphylococcus albus originally obtained from the hair follicles of the subject. No sign of infection developed from plain germ cultures on the clean skin, even when rubbed in. Then, the culture was mixed with oil and rubbed in. There was no reaction. But, when the culture was mixed with oil and lime soap scum a vesiculitis developed every time.

Thus, it seems clear that these lime scum deposits can become a source of infection if they are allowed to persist on the skin. This becomes all the more interesting when it is remembered that these scums tend to cling tenaceously to hair, and hence to the hair follicles on hands and arms.

These tests indicated that in hard water areas exceptional care must be taken to insure the removal of lime scums from the skin after washing. But, much better still, is the prevention of such scums. Here the choice of ingredients which provide added alkalinity in a hand cleaner is important. If the right material is used, no lime soap is formed at all when the cleaner is used.

Practically all ordinary soaps will form lime soap scums in hard water. If this scum harbors bacteria in spite of the ability of soap solutions to kill them, added germicidal ingredients, particularly in the dilution and brevity of contact in use, will be equally valueless.

Not only are the soap and added alkalinity-producing agents in Magnus Hand Cleaner selected so as to insure the maximum possible speed and thoroughness in rinsing, but one agent in particular is provided to eliminate the formation of lime scums. It precipitates the lime and magnesium salts present in hard water in the form of insoluble, inert solids, which cannot cling to the skin or hand follicles and rinse off completely with the rest of the dirt.

MAGNUS—THE IDEAL HAND CLEANER

Step by step we have outlined specifications for an ideal hand cleaner and shown how Magnus Hand Cleaner meets these specifications at every stage. This cleaner has been accepted for nearly twenty years by a large number of industrial plants here and abroad as the safest and best available.

The results of using Magnus Hand Cleaner are completely satisfactory. The dirtiest kind of hands and arms respond quickly to the ordinary rubbing action of hand washing, with no need for brush scrubbing. The time of contact with the cleaner is not materially longer than that for washing ordinarily dirty hands about the home or office. And when the hands are rinsed they dry quickly and readily, leaving the skin soft and smooth, with no tendency to chap or crack. Note that if there are abrasions or cuts or irritated areas, proper medication should be given at this time, when the hands are clean--as the only logical way of preventing infection or spread of infection. If the need for an emollient is indicated, this is the time to apply it.

THE FORM OF THE HAND CLEANER

We have our specification for a good hand cleaner. In what form should it be provided?

Obviously, since an abrasive is essential, we cannot provide the cleaner in liquid forms. There are some arguments in favor of a liquid soap for wash room use, of course. It is easily dispensed in measurable quantities sufficient to the purpose. It cannot be contaminated by successive users. It is easy to handle from the refill standpoint.

But, it is well to remember that liquid soaps are not concentrates, since they rarely contain less than 60% water. From the purchasing viewpoint, this is a point to stress. And since you could not effectively maintain the proper proportions of scouring agents in dispensing a liquid cleaner built to the specifications outlined, the liquid method would seem to be eliminated.

The cake soap plan is, of course, out of the question, not only from the viewpoint of contamination, but from that of economy and neatness of surroundings.

Paste soaps have long been used for hand cleaning. They are still the most widely used type. Properly compounded, under effective technical control, a paste soap can be a desirable and effective hand cleaner, particularly if the scouring agent is of a safe type. But like a liquid soap, the water content in a paste soap can vary widely so that rather uneconomical buying can easily result. Dispensing of paste soaps is difficult and consumption without effective dispensing methods is unduly high.

This leaves us to the powder method of dispensing, which is actually most desirable from every point of view. All Magnus Hand Cleaners are supplied in the form of free-flowing granular powders, perfectly adapted to dispensing in automatically regulated amounts. You can dispense measured and required units of this powder just as readily as a liquid. In fact, there is a much greater tendency to take a few extra "shots" of a liquid soap in hand washing than there is to take more than the one measured delivery of a powder. There is no danger of contamination and refilling is even more practical than with a liquid. Magnus Hand Cleaner maintains its uniformity under all conditions.

CLEANING ROUTINE

What set-up should be followed to insure safe washing of hands with Magnus Hand Cleaner?

First of all, it seems very obvious that the responsibility for the final selection and supply of hand cleaner is definitely the company's. As long as workers provide their own soaps, bought outside or at the company stock-rooms, so long will you have wide-spread use of all kinds of hand soaps, among which are sure to be harmful types.

Besides, from a sociological viewpoint, it is just as much the responsibility of management to supply a safe, effective soap for cleaning up as it is to supply suitable wash rooms in which cleaning up takes place.

Preference Tests

Then comes the question of insuring not only the proper use of the hand cleaner, but its whole-hearted acceptance on the part of workers. We recommend preference tests among the workers before a definite type of soap is taken for standard use. It is not difficult to provide in a certain section of the wash room dispensers containing a variety of hand cleaners, preferably unidentified except by number or signal. Then, the men or women concerned are asked to use them in turn for a reasonable period and to express their preferences. Usually a fairly clean cut answer is soon obtained, and the workers, recognizing their part in making a definite choice will in the overwhelming majority of cases be satisfied to abide by the choice of the majority.

There is another value to such preference tests. Those workers whose skin is unusually sensitive are hard to discover until incidence of dermatoses make them suspect. But, with preference tests they tend to be discovered readily, when dislike of an otherwide widely preferred cleaner often indicates a more than ordinarily tender skin.

Dispensing

From a practical viewpoint, there is no difficulty with the mechanics of dispensing. There should be ample numbers of dispensing units to provide ready service to the number of people involved. Magnus Dispensers deliver just enough cleaner for a hand and arm washing operation by a simple pushing motion on a lever. They are easy to keep filled and are made of materials which insure their remaining bright and clean with minimum maintenance, in order to take their place in a well kept wash room.

No plant buyer need worry about dispensers. Magnus Dispensers are sold at a reasonable price to the average plant, or are provided on a loan basis to large users with a contract for long term supply of cleaner.

If selection of a type of hand cleaner is made on the basis of employee preference tests, not so much effort need be made to sell the particular cleaner to the force as a whole. But if no such tests have been made, it would seem desirable to mark the introduction of a new cleaner with a simple but informative message, posted on the plant bulletin board and/or in wash rooms, pointing out the desirable features of the cleaner supplied and the reasons why it is being used, together with brief directions as to its most effective and economical use.

MAGNUS HAND CLEANER COSTS LESS THAN 1/10¢ PER DAY PER MAN

One of the most definite exposures of the fallacy of buying cleaning materials on a first cost basis is available in the case of Magnus Hand Cleaner.

It is, of course, more costly than ordinary sand soaps and other detergents which are not compounded to meet the hand washing problems with safety and speed. But in addition to doing a speedy cleaning job and thus insuring effective hand cleaning in the time available and to being safe and easy on the skin. Magnus Hand Cleaner goes a whole lot farther than ordinary soaps. It is thus so inexpensive on a performance basis that the small differential in first cost is not a factor worth considering. The cost of washing hands twice a day with Magnus Hand Cleaner is less than a mill---a tenth of a cent a day per man. One pound of cleaner provides over 350 washings, or two washes a day for

175 men. In spite of their lower first cost the wastes involved in using cheap liquid or paste soaps inevitably boost the cost of using them on a performance basis far above this low figure for Magnus Cleaner.

ON-THE-JOB PROTECTION OF HANDS AND ARMS

If your employees use Magnus Hand Cleaner twice a day, before lunch and at the end of a shift, each worker will have, for a brief time, sanitary, well-cleaned hands. But, all you have done in providing this speedy, effective, non-irritating hand cleaner is to avoid the danger of infections and dermatoses which result from irritations or abrasions arising from harsh abrasives or irritating chemicals in the hand cleaner. Once out in the plant every worker is exposed to far greater dangers of infection, irritation and skin damage from the work he does and the materials coming into contact with the skin of hands and arms. What can you do to protect him against these hazards?

The first and most important step is to reduce the number of contacts he can make with corrosive fluids, harmful fumes and dusts, prolonged immersion in water, hot or cold and to adopt other safety precautions which are being so well covered in the safety literature prepared for modern industrial executives. These steps are of vital importance, because they minimize the opportunities for harmful action.

Yet, even where the utmost precautions are taken, there still remain essential contacts with hazardous materials and operations which tend to cause abrasions and irritations. The machine worker will get skin abrasions, cuts and minor wounds, in spite of the most effective precautions. Some workers will have to get their hands wet in water or other solutions, often for relatively long periods. Dirt will collect on the skin of hands and arms--and this dirt will usually contain germs which are ready to enter any slight scratch or abrasion received during work--sometimes to cause serious infections or dermatosis. Is there anything that can be done to afford protection along such lines?

If a strong glove of extremely thin rubber could be provided, a great deal of protection could be given. The trouble is that not only is such a rubber glove impossible to make, but human nature is such that even were it available, the average worker would not wear it without constant supervision. He would lose the "feel" which is so essential in his work. In fact in a great many operations, the lost sense of touch resulting would seriously handicap both worker and the process. And above all, he would not like the perspiration caused by gloves.

Yet the value of such a principle is unescapable. Not only would the skin surface be protected against contact with dirt, but the danger of infection or irritation from abrasions or contact with harmful materials would be tremendously lessened. Washing up at the end of a shift, or for lunch, or at any time would be much easier, quicker and safer.

There are some other obvious disadvantages in this method of protection. No physician could approve whole-heartedly of any device which would materially impede the natural function of the glands of the skin. A perfected rubber glove of the type outlined would, of course, cover the surface of the skin tightly and completely and very definitely impede gland functions over the area covered.

MAGNUS SKIN-GARD

Magnus Skin-Gard has been developed to make as much use as possible of this "superthin glove" principle. It is not to be regarded as providing perfect protection, of course. It does, however, provide a worthwhile degree of protection on-the-job---in many cases completely adequate to the situation.

Magnus Skin-Gard is a greaseless ointment which, when rubbed in small quantities into the skin provides a protective coating which is effective in varying degree, depending on the nature of the work done.

It coats the skin thoroughly and yet provides a coat which does not give any material sensation of an artificial covering. In other words, its physical presence is not apparent to the user after the first few minutes when it is being rubbed on. It does not rob the skin of sensitiveness of "feel".

The logical objection to the interference of Skin-Gard with the gland functions of the coated skin should be tempered considerably by the fact that perspiration will occur under the coating and not only work its way throggh but also tend to remove the coating. This means that the protection afforded depends on more than one application, the frequency of which is to be determined by the nature of the work done. Certain industrial materials, moreover, also tend to remove the protective film.

Degree of Protection Obtained

Magnus Skin-Gard offers excellent protection in certain operations, providing an interposing coating against contact with irritating or poisonous substances, on which much of the dirt which would otherwise soil the skin and embed itself in its surface is deposited, making ultimate washing of the hands and other surfaces treated so much easier. In a relatively few types of operations the nature of the work may be such that the degree of protection is so limited as not to warrant the use of such compounds, but in most cases Skin-Gard is highly effective when applied often enough to maintain the protective coating under the specific conditions involved.

An incidental value of Skin-Gard is of particular interest during the present emergency. Wherever highly polished metal items, such as tools, apparatus, machine parts, mirrors, are handled after polishing--for assembling, inspection or packing, it is extremely effective in preventing finger or sweat stains on the work.

It is effective to prevent contact with oil, solvents, paints and lacquers and many chemicals. Where particularly hazardous fumes or dusts cannot be completely controlled, this protective coating can be used, not only for hands and arms, but for any exposed skin surfaces and even for unexposed surfaces which might be affected by contact with contaminated clothing.

MAGNUS SKIN-GARD and Sensitivity

Magnus Skin-Gard should be particularly interesting to insurance company and safety executives in that it is peculiarly effective in reducing the incidence of dermatoses resulting from acquired supersensitivity to particular substances, even in weak concentrations. It is efficacious, not only against primary irritants such as acids, alkalies, metallic salts, strong soaps and poisonous fumes and dusts, but also for the many materials which cause sensitization and supersensitivity which are usually so difficult to cure, once they have becomes established. Among these materials might be listed resins, turpentine, formaldehyde and chromium compounds.

As pointed out above, too much dependence on a single application of Skin-Gard should not be encouraged, since perspiration will tend to dissolve the coating. Frequency of application depends on the nature of the contacts with harmful materials it is sought to avoid and on the rate at which the coating is dissipated in use. On unusually hazardous operations where contact avoidance is of the highest importance, the frequency of application is a relatively unimportant factor compared with the protection it can afford. In less hazardous operations, the frequency of application may be cut materially and a reasonable degree of protection still remain available.

PROTECTION ON-THE-JOB

The major reason for consistent use of Skin-Gard coatings is the essential value of on-the-job protection, even if it is not 100% perfect. Too much emphasis is placed on the washing operation after exposure. All that washing can do even when it is most thorough and effective, is to remove the dirt after it has had full opportunity to do its worst damage. Of course good washing does cut short the period of contact and prevent residues, which might still remain after poor washing, from doing further damage. But, it is obvious that the greater proportion of dermatoses originate and become serious, during working hours. The only effective protection which will really reduce the incidence of dermatoses on hands and arms from the causes outlined above must of necessity be of the character of the "supplementary skin" we have been describing. Many large plants have made use of Magnus Skin-Gard a shop standard because of the benefits derived.

ROUTINE FOR ON-THE-JOB PROTECTION

Since this partial protection is available, the major problem of the industrial physician, safety engineer and insurance company is to sell the idea of using it in its most effective ways, not only to management, but to the workers themselves. The actual cost of Skin-Gard is negligible, but the potential savings are large. Yet, unless a definite routine of use is set up and followed until it is habitual, results cannot be noticeably satisfactory.

Strictly speaking, the use of Magnus Skin-Gard involves:

1. A trip to the wash room before beginning work. There hands and arms are thoroughly washed and Skin-Gard applied.
2. One or more additional applications during the period before lunch, always following wash-ups.
3. Wash up before lunch.
4. Wash up after lunch, followed by application of Skin-Gard.
5. Additional wash-ups and applications during the balance of the shift, depending on the need.
6. Final wash-up at end of the shift.

Such a procedure calls for considerably more wash-ups than the normal of one before lunch and one at the end of the shift. They take time. But the degree of protection afforded is sufficient to warrant the practice in most cases.

The real problem seems to be the selling of the function and purpose of the method to workers, so that they will follow it consistently. This bulletin is no place for a discussion of employee relations, but we submit, that this job, if it is fully appreciated and consistently undertaken, is in no sense an insuperable one. Certainly, the goal of on-the-job protection is worth considerable effort.

The problem of dermatoses of hands and arms deserves considerable thought and much active planning. But, in its fundamental aspects, it is comparatively simple. Even if only partial protection can be provided for skin surfaces during working hours, through Magnus Skin-Gard, and all but major trauma and acute burns or irritations are avoided or minimized -- material progress can be achieved in reducing the incidence of industrial dermatoses in any plant. Then, if, in addition, the remaining weak point in the armor of protection is strengthened by the use of effective non-irritating Magnus Hand Cleaner, there should be a very encouraging picture of improved safety to present at the end of every period of check-up.

GIVE SAFE, EFFECTIVE AND ECONOMICAL HAND PROTECTION A REAL TRIAL

Order enough Magnus Hand Cleaner and Skin-Gard to conduct a real test in one or more of your plant washrooms. Let your employees tell you what they think of the Hand Cleaner in particular—and note how fast it works. Try it on your own hands too, particularly after you have been out in the plant and have a really dirty pair of hands.

Experiment with Magnus Skin-Gard on various plant operations where contact hazards are high; where perspiration contacts should be avoided; where hands get extra dirty—and any other spots where the type of protection it affords should be valuable.

THE MAGNUS GUARANTEE PROTECTS YOU

It has always been our belief that the sale of a Magnus Material does not complete the transaction between the buyer and us. It gives us a new obligation—service. The proper and economical use of Magnus Materials is to us as important as the sale of them. For that reason, Magnus Hand Cleaner and Magnus Skin-Gard are shipped on the basis of the following fair trial offer.

We will send you a standard container of Magnus Hand Cleaner or Magnus Skin-Gard. You test it out following our simple directions. Unless it works to your entire satisfaction after a fair 30-day trial, you may return the unused material to us for full credit. You are to be the sole judge.

MAGNUS HAND CLEANER is packed as follows:

225-lb. Barrel
100-lb. Keg
40-lb. Keg
Cases (48 10-oz. cans each case)

MAGNUS SKIN-GARD is packed as follows:

Cases (24 10-oz. cans each case)

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps,
Sulfonated Oils, Emulsifying Agents and
Metal Working Lubricants.

256 South Avenue
Garwood, N. J.

Write for Literature on MAGNUS PRODUCTS Applicable in Your Branch of Industry

MUNITIONS CLEANING HANDBOOK—Contains latest data on cleaning shells, shell cases, fuse parts and all other munitions. Also covers recent developments in metal cleaning for other metal parts and units.

FLEET OPERATORS CLEANING HANDBOOK—A valuable cleaning manual for truck and bus operators. Describes the latest methods and materials for all fleet vehicle cleaning operations.

AVIATION CLEANING HANDBOOK—For all those concerned with safer, more efficient operation and maintenance of aviation equipment. Covers cleaning operations in maintenance of aircraft, airports and engine shops.

AUTOMOTIVE CLEANING HANDBOOK—Thoroughly describes all types of automotive cleaning operations, methods and materials for use by auto dealers, garages, service stations, battery and radiator shops and motor rebuilding shops.

PAPER MILL CLEANING HANDBOOK—For paper and board mill superintendents; paper technologists and all those concerned with the more efficient and profitable operation of paper mills.

BAKERY CLEANING HANDBOOK—A helpful handbook for the bakery industry. Under the heading "Cleaning Problems of the Bakery" are discussed such cleaning operations as washing bread pans, cake and pie pans, general cleaning, sterilizing and many others.

DAIRY CLEANING HANDBOOK—A descriptive manual discussing the many cleaning problems met with in dairies and milk handling plants. Sections are devoted to; cleaning barn equipment, bottling plants, retail stores, ice cream and cheese plants.

DRAWING LUBRICANTS Bulletin—Discusses the qualities that should be sought for in wire drawing lubricants to insure smooth, bright finish, longer die life and greater poundage per die.

CLEREX Bulletin—A treatise on the prevention and removal of sludge from industrial oil burning equipment.

You will find Magnus Materials and Methods used throughout practically every branch of industry. Ask us to show you how others in YOUR industry are obtaining reduced cleaning costs and other economies through the use of Magnus Materials and Methods.

Reprints

Weekly
News

FEDERAL WORKS AGENCY
UNITED STATES HOUSING AUTHORITY
Washington, D. C.

Community Activities

Rosenwald Gift Provides Negroes Modern Health Center Here

The *Courier-Journal*, Louisville, Ky.
November 15, 1940

Establishment of a completely modern, centralized Negro Health Center in the new Beecher Terrace housing project to replace existing makeshift facilities was assured Thursday, when the Julius Rosenwald Fund announced the donation of $8,225 to the city for that purpose.

Without underwriting any expansion of the existing health services, the gift, by vastly increasing the efficiency of the present staff, will undoubtedly cause a rise in the general Negro health level, according to Dr. Hugh R. Leavell, city health director.

"It's one of the finest things we've ever had," Dr. Leavell said. "We can give the Negro population health facilities of their own of which they can be proud and which will provide an incentive to health consciousness. One way it will improve general health without actually expanding service is in offering volunteer Negro doctors space in which to work with the health department."

Gift is Second for Negroes

The donation, $5,000 of which is to be made available at once, the balance when needed, is the second contribution of the Rosenwald Fund to Negro health in Louisville. In 1937, with the establishment of the present Central Louisville Health Center and the Chestnut Street Treatment Center, both at 920 West Chestnut, the fund paid the first year's salary of Dr. C. M. Young, Negro assistant director of health, and later sent him to the University of Minnesota on a fellowship which enabled him to obtain a public health degree.

The existing Negro health services function in a section of the Negro recreational building on a budget of $20,662.75 annually, with Dr. Young in charge of the center, specializing in preventive work, and Dr. Arthur T. Hurst of the U. of L., aided by Dr. John R. Nurse, Negro, supervising the work at the treatment center. The other paid employees are seven nurses, a sanitary inspector, and two clerks.

Patients Get New Incentive

"The Fund gift means an end to scraping along with insufficient space, inefficient heating and lighting, and, in some cases, improvised equipment," Dr. Young said. "One of the principal difficulties of public health work is in keeping the patients coming. With a clean, white modern center they'll have a real incentive to continue treatments and clinical attendance."

To date this year, 4,190 persons have passed through the preventive center alone, Dr. Young said. Figures on the heavier volume in the treatment center were not available Thursday. ★

Health Center Started In Chicago Project

The Community Health Center at Julia C. Lathrop Homes in Chicago was recently opened.

Purpose of the Center is to provide low-cost medical care to those residents of the Lathrop Homes and the surrounding community who may care to avail themselves of its facilities, and it will cooperate at all times with all reputable members of the medical profession.

The Julia C. Lathrop Homes Tenant Health Committee has made arrangements with Dr. Roy W. Kline, M. D., who is both a physician and surgeon, to act as Medical Director. Dr. Kline has practiced medicine on Chicago's northwest side for many years and has had wide experience in the organization and operation of low-cost medical enterprises. He will be available for extraordinary office hours at the Health Center during the initial stage of its development.

The growth of the Health Center will, of course, depend on the amount that its facilities are used; and, as conditions warrant, it is intended to expand by adding new departments, such as X-ray, dental, eye, etc., together with such special equipment as may be required.

The Health Center will not only provide complete medical service, including arrangements for hospitalization and surgery, all at low cost, but also low-cost periodical health check-ups as being by far the most economical way to insure continuing good health and happiness.

Housing and Medical Care are Linked at Vladeck Houses, Corlears Hook Project

New York Times
November 20, 1940

Public Health officials as well as individual physicians throughout the country are watching with keen interest the workings of the Vladeck Houses Health Plan, a pioneer experiment linking houses and health, which was started here recently in connection with the Vladeck Houses, public housing development on the Lower East Side, it was revealed here yesterday by David M. Hayman, president of the New York Foundation. The Foundation has made a grant of $10,000 to cover the cost of administration for the experiment through a 2-year period.

The plan, it was pointed out, is neither health insurance nor a group health project. It is prepayment for medical care, but without the pooling principle. Originally proposed by Dr. George Baehr of this city, the plan is designed to provide general medical care to wage earners in the low-income groups at $3 a year a person or $12 a family of four or more, to be collected in monthly payments with the rent. About 1,700 families, or a total of about 6,200 persons, are expected to benefit by the plan. The amounts paid in would be prorated among the physicians chosen by the tenant-members of the plan.

The Vladeck Houses consist of 24 six-story buildings of like design, covering six city blocks in the Corlears Hook section. Apartments range in size from 2½ to 5½ rooms and rent from $4.80 to $7.60 a week.

Corlears Hook Medical Association is the official name of the tenant association that will operate under the plan. Policy for the association will be guided by a committee of 13—8 doctors comprising a supervising medical board; 3 laymen, representing, respectively, Henry Street Settlement, Henry Street Visiting Nurse Service, and Lower East Side Association of Agencies, and 2 tenant representatives.

Of the doctors on the committee, two each are from Gouverneur and Beth Israel Hospitals, two represent the Lower East Side doctors, and two the New York County Medical Society. The plan will be administered by a staff consisting of a medical director, an executive secretary, and sufficient clerical help to keep careful records.

Any doctor in New York City may signify his desire to join the panel for this health plan.

U. S. GOVERNMENT PRINTING OFFICE : 1941—O-311149

"This we must do . . .
YOU and I . . . and
EVERY PATRIOTIC CITIZEN . . .

In Defense of the Nation"

a new talking motion picture
presented by
The Committee on National Defense Activities
of the
AMERICAN SOCIAL HYGIENE ASSOCIATION

★ ★ ★ ★ *This new film tells the facts about some old problems which conf*

TODAY, as America builds national defense, an old problem confronts us. For wherever military, naval or industrial manpower is mobilized, those who seek to exploit men and women for profit also mobilize, unless action is taken against them. And chief among the exploiters are those who engage in the vicious "racket" of commercialized prostitution.

Prostitution and the venereal diseases which this sordid business helps to spread are the concern of every American community. For in evil partnership with other vices—dope, drunkenness, gambling, not only America's sons, but our daughters—are threatened, especially thousands of young girls seeking employment.

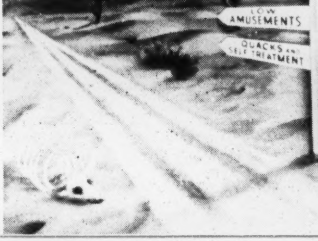
Men and women everywhere must work together, must act vigorously and immediately to combat these conditions, if national defense is to be made secure.

WHICH ROAD LEADS TO YOUR TOWN?

Remember that soldiers and sa
not special types of young me
your neighbors' boys—perhaps

If the road they travel to yo
law-evading saloons, gamblin
nation and the community wil

But when a community stamps
ditions and provides decency
clean sports, good food and
medical care, that communi
defense and American welfare



★ ★ ★ ★ *and what you and your own community can do to h* *nfront American communities today and hinder national defense* ★ ★ ★ ★

sailors and defense workers are
nen—they are hometown boys—
ps your boy.

your town leads to prostitution,
ing and low amusements, the
vill suffer.

ps out these unwholesome con-
y and order, friendly churches,
nd rest, adequate health and
nity is truly aiding national
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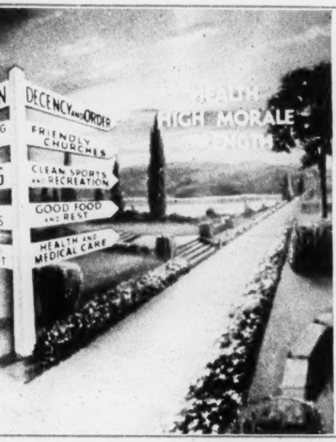


"GOOD TIMES IN GOOD COMPANY" KEEP MORALE HIGH

A Doctor Speaks ·

"Modern science and experience have taught us that no system which permits prostitution to flourish protects either the health or the morals of a community from the damaging effects of this vicious business. Segregation of prostitutes in licensed houses in a red light district does not prevent the practice of prostitution outside the segregated areas. Medical inspection of prostitutes is futile and merely gives a false sense of security from disease.

The red light district helps the vice ring in persuading or coercing girls to become prostitutes and provides a market for their sale.

The police and law enforcement officials can reduce prostitution to a minimum, simply by enforcing the laws, especially those laws aimed at the "madams," landlords, agents, procurers and other exploiters whose greedy hands take the earnings of unfortunate women and girls.

Public officials take action against the vice rings whenever the citizens demand action. The responsibility rests, therefore, on the citizens. They can drive out the traffickers in human bodies, the profiteers in human health and morals, whenever they organize and exert their powers and rights as citizens.

Syphilis and gonorrhea are old and persistent enemies of mankind. We must fight them today so that soldiers, sailors and defense workers may do their duty well and return safely home to serve tomorrow as citizens, workers, parents of future Americans."

help meet this challenge and guard American welfare! ★ ★ ★ ★

"EVERY CITIZEN'S JOB . . . might well be the title of this new film. I cannot too strongly emphasize its message that while soldiers, sailors and industrial workers are preparing our defense, every citizen shares in the responsibility for helping to protect them from the ravages of syphilis and gonorrhea, those deadliest of enemies lying in wait for them on every hand. This film tells how the job of fighting these enemies can be done, and everyone will want to see it."

Philip R. Mather, *Chairman, A.S.H.A. Committee on National Defense Activities*

A marked advance in social hygiene education; dignified, forceful and instructive. Should be shown in all industrial defense centers."

Captain E. W. Brown (M.C.),
United States Navy

"A very excellent picture."

General Albert G. Love,
United States Army

"The great need for brief, entertainingly presented, visual, educational material makes any good new film a welcome addition to the list. Quite aside from this, *In Defense of the Nation* rates four stars for timeliness, terseness and clarity. It should do much to help communities in their social hygiene problems."

R. A. Vonderlehr, M.D.,
Assistant Surgeon General, U. S.
Public Health Service

"The doctor's message against regulation of commercialized vice is alone worth the price of the film. Voice, music and recording are excellent."

Robert W. Osborn,
New York State Charities Aid
Association

FACTS ABOUT THE FILM

Presented by

The Committee on National Defense Activities, American Social Hygiene Association

Supervised by

Dr. Walter Clarke, as medical advisor, assisted by Joseph L. Stenek and other A.S.H.A. staff members, and a Technical Advisory Committee of experienced persons

Produced by

The Jam Handy Organization of Detroit, nationally known makers of educational and documentary films.

Type of film

Dramatic, diagrammatic and documentary, with a cast of forty professional actors, with voice and sound throughout.

Narration

Ben Grauer, of the National Broadcasting Company

Suitable for

showing before mixed audiences of both lay and professional people, young and old

Running time: Ten to twelve minutes. (one-reel)

Price: 35 mm. $75. 16 mm. $50. Rental per day (while in hands of consignee) $5.00.

A limited number of review prints are available to reliable agencies without expense except for transportation, which is extra in all cases.

for further information concerning

"IN DEFENSE OF THE NATION"

write to

AMERICAN SOCIAL HYGIENE ASSOCIATION
1790 Broadway, New York, N. Y.

Ask for free copy of complete text which accompanies the film, as narrated by Mr. Grauer. Pub. No. A-334.

Pub. No. A-335 7–41

With These Weapons

The Story of Syphilis

A new talking motion picture film

presented by

THE NATIONAL ANTI-SYPHILIS COMMITTEE

of the

AMERICAN SOCIAL HYGIENE ASSOCIATION

Facts About "With These Weapons"

Presented by:	The National Anti-Syphilis Committee of the American Social Hygiene Association
Produced by:	Willard Pictures, New York, well-known makers of educational films
Type of film:	Documentary, diagrammatic and dramatic techniques are employed, with voice and musical effects throughout
Narration:	David Ross, Columbia Broadcasting System commentator
Running time:	Eleven minutes

Price: 35 mm., $75.00; 16 mm., $50.00. Rental per day (while in the hands of consignee) $5.00. *Transportation extra in all cases.*

HOW TO GET THE FILM AND SUGGESTIONS FOR USE

LIKE all the American Social Hygiene Association's films, **With These Weapons** is available for purchase or rental by responsible and recognized health, welfare and educational agencies or institutions, for non-commercial showings. The film will be sent to such agencies on three days approval. Many State and local Health Departments and Social Hygiene Societies have already purchased prints, so that you may be able to review **With These Weapons** in your own community without waiting to secure a copy from the Association.

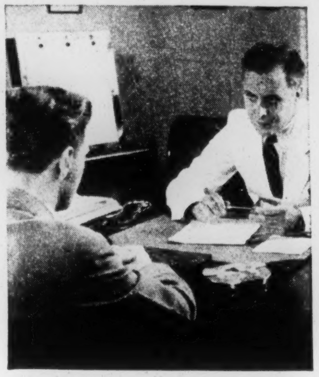
Please address all requests to

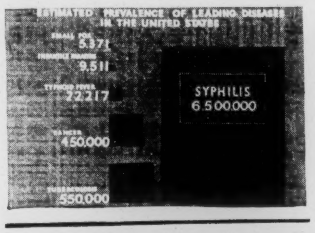
THE AMERICAN SOCIAL HYGIENE ASSOCIATION
50 West 50 Street, New York, N. Y.

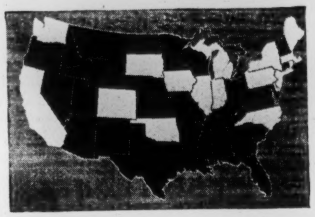
As our supply of review prints is limited, we suggest that as many interested representative groups as convenient join in plans to review the film locally, thus avoiding delay. We shall appreciate having a list of agencies invited. Comments on the film will also be gladly received. Please be sure to state whether you are interested in purchase, rental, and whether you desire 35 or 16 mm. gauge.

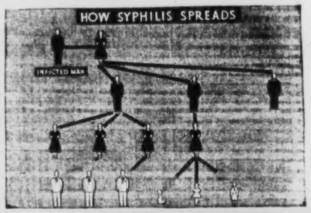
Scenes

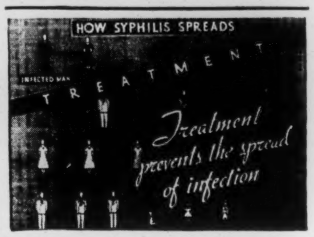
from the film—diagnosis and treatment of syphilis—animated diagrams showing prevalence of the disease—prenatal examination laws.











The Story of Syphilis

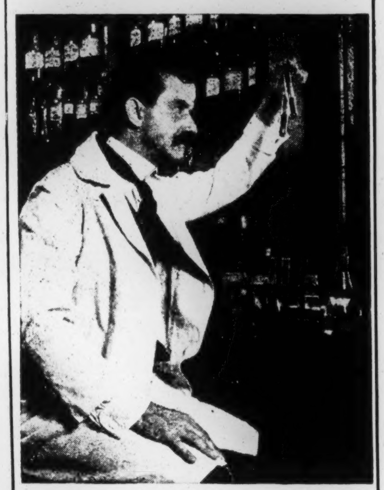
Opening with the first great steps toward the conquest of this devastating disease by scientists Fritz Schaudinn, August von Wassermann and Paul Ehrlich, **With These Weapons** grows steadily in interest and power throughout its length.

The work of today's scientists, as they perfect the principles of diagnosis and treatment which, once fully applied, will stamp out syphilis as smallpox, typhoid, and diphtheria have been stamped out—the relation of the disease to individual, family and public health—to industry, to the taxpayer—and the agencies which fight it—are shown.

Fact by fact, scene by scene, the film and the voice of the narrator build to a dramatic climax—

"Only one more thing is needed to defeat the germs of syphilis—knowledge of the facts by every man and woman."

1905 Schaudinn (played by Scott Moore) discovers the germ which causes syphilis.



1906 Wassermann (Marshall Bradford) perfects the blood test which finds syphilis.

What Schaudinn saw through his microscope

Spirocheta pallida, the pale spiral-organism of syphilis.

1940 DAVID ROSS, well known Columbia Broadcasting System Commentator, tells the story of the thirty-five year war against this dangerous disease for the National Anti-Syphilis Committee

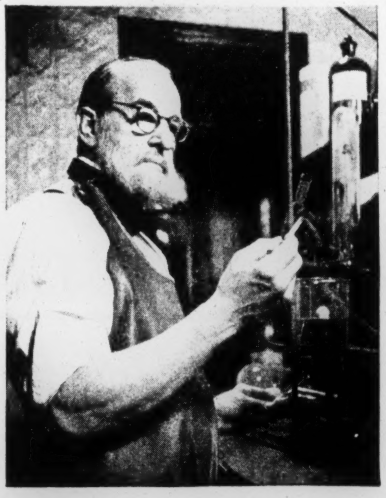
With These Weapons

has been prepared for use by schools, colleges, state and local health departments, women's clubs, social hygiene societies and other interested organizations.

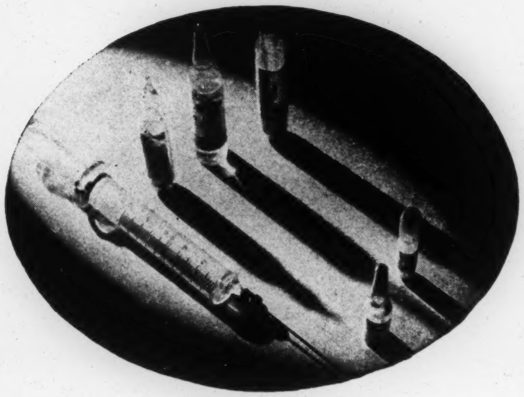
The film is suitable for almost any audience, and is especially recommended for young people. It contains no fear-provoking or pathological scenes, but tells clearly the simple hopeful facts about syphilis—its cause, its spread, its cure.

Scientific accuracy was assured by the assistance of an advisory committee including:

Dr. W. A. Brumfield, New York State Department of Health; John Hall, New Jersey Department of Health; Robert Osborn, New York State Tuberculosis and Health Committee, and Dr. W. F. Snow, Chairman of the Association's Executive Committee. Dr. Walter Clarke, A.S.H.A. Executive Director, supplied direction of medical details, and Edward C. Kienle of the A.S.H.A. staff was responsible for general supervision of production.



1910 Ehrlich (Al Raymond) after 606 experiments produces salvarsan, which cures syphilis.



'With widespread knowledge, and

WITH THESE WEAPONS,

America can conquer syphilis

in one generation"

COMMENTS

"We were particularly happy to have the opportunity at our recent meeting to see your new film *With These Weapons*. It is one of the few outstanding educational films that I have seen."

Charles E. Shepard, M.D.
President, American Student Health Association

"There is acute need for more effective visual educational materials in the field of venereal disease information. *With These Weapons*, I feel, is the best effort to date to present the general problems of syphilis control in America. Its brevity and clarity should make it particularly effective for use as a medium for introducing the subject to any type of audience."

R. A. Vonderlehr
Assistant Surgeon General
Division of Venereal Diseases
United States Public Health Service

"Unquestionably, the best film of its type produced to date. . . ."

Philadelphia Health Council and
Tuberculosis Committee

"Heartiest congratulations on this very effective educational picture. It should have wide use in churches as well as in other educational groups. . . ."

L. Foster Wood
Secretary, Committee on Marriage and the Home, Federal Council of the Churches of Christ in America

"I like *With These Weapons* very much indeed, and am sure it will be greatly in demand all over the country."

Mary Swain Routzahn
Russell Sage Foundation

"I think *With These Weapons* is an excellent film. It is short and snappy; accurate as to facts and impressive. As an introduction to a talk to any group, lay or professional, on venereal disease control, it will be most useful."

C. C. Pierce, M.D.
U. S. Public Health Service

"It is a good film. It goes straight to the point and tells the average person what he ought to know about syphilis in language and scenes he can understand."

Louis I. Dublin
Metropolitan Life Insurance Company

From the Trade Magazines

"This exceptional one-reeler stands on the promise that syphilis can be wiped out within one generation if the people are educated to the facts. . . . A film as worthy and as well done as this one deserves wide exhibition. Excellent*."

* Trade rating. The Exhibitor

"A well produced short."

Showmen's Trade Review

"It is particularly well done and its message gets across."

Boxoffice

Pub. No. A-235 4-40

With These Weapons

The Story of Syphilis

A new talking motion picture film

presented by

THE NATIONAL ANTI-SYPHILIS COMMITTEE

of the

AMERICAN SOCIAL HYGIENE ASSOCIATION

Syphilis can be Conquered!

THIS NEW SOUND MOTION PICTURE FILM TELLS HOW

Childhood, Youth, Marriage, Your Family, Your Community

CAN BE PROTECTED, AND HOW

You can help!

With These Weapons

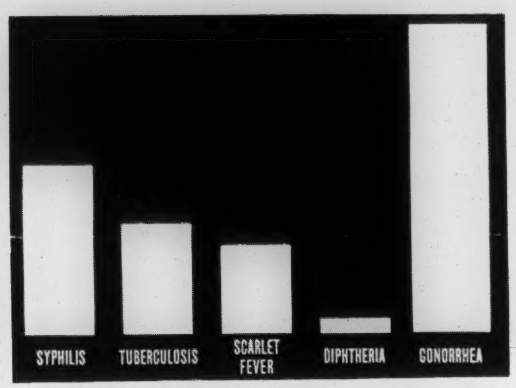
Released
December 15, 1939
by
The American Social Hygiene
Association

The Association's latest talking motion picture—

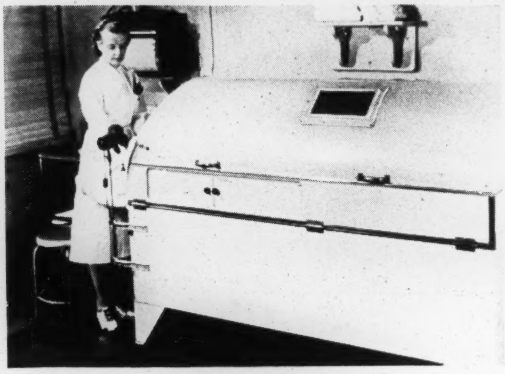
HEALTH IS A VICTORY
Copyright 1942 by the American Social Hygiene Association, Inc

—The Story of the Fight against Gonorrhea

produced by Willard pictures with medical direction and assistance of American Social Hygiene Association staff and cooperation of New York City Department of Health, Bureau of Social Hygiene and the New York Hospital.



" More gonorrhea than any other serious infectious disease "

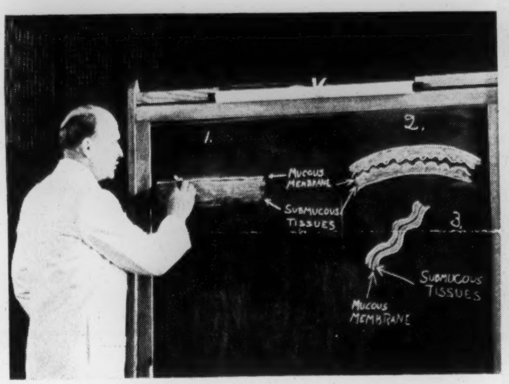


Fever therapy

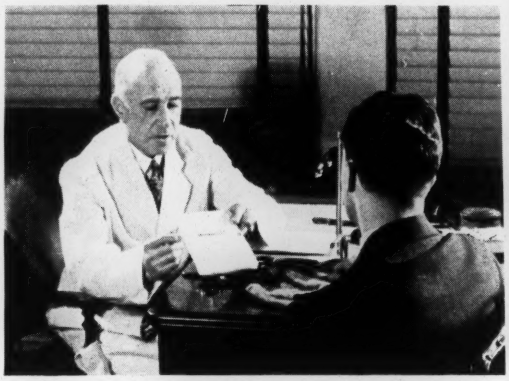
HEALTH
IS A
VICTORY! . . .

is a worthy companion film for **With These Weapons,** the Story of Syphilis; **In Defense of the Nation; Plain Facts;** and other Association films.

The photographs on this page show various scenes from the new film.


1.
2.
3.
Mucous Membrane
Submucous Tissues
Submucous Tissues
Mucous Membrane

A doctor tells industrial workers how gonorrhea attacks body tissues.



Expert medical advice for the patient.

Below— Preventing babies' sore eyes by application of silver nitrate solution at birth—an outstanding accomplishment of modern medicine.

To get authentic pictures, of this method of preventing gonococcal infection, cameraman and director in gowns and masks waited four hours for this baby to be born in New York Hospital. At left, they are just about to shoot the scene shown above.

The new production—

HEALTH IS A VICTORY—

the Story of the fight against Gonorrhea—like others of the American Social Hygiene Association's films, was made in response to a steady demand for a film to tell briefly, scientifically and accurately the facts about the campaign against gonococcus infections. It is suitable for mixed audiences of high school age and up, and for both professional and lay groups.

Produced by Willard Pictures, who made the popular **With These Weapons, the Story of Syphilis,** under the medical direction of Dr. Walter Clarke, assisted by J. L. Stenek of the A.S.H.A. staff, **Health Is a Victory** is clear, concise and effective. Presentation is dramatic and documentary, with voice and sound throughout, and a notable cast.

Running time: 10 to 12 minutes.

Price: 35 mm., $75. 16 mm., $50. Transportation extra.

Rental: $5 per day in the hands of the consignee, plus transportation.

•

Write for free film folder, Publication No. A-428, describing other A.S.H.A. films—both talking and silent.

AMERICAN SOCIAL HYGIENE ASSOCIATION
1790 Broadway, New York City

Pub. No. A-440 Printed in U. S. A. 5-42

SEEING AND HEARING SOCIAL HYGIENE

Health Films

Social Hygiene Motion Pictures

Talking — Silent

Talking Slide Films

AMERICAN SOCIAL HYGIENE
ASSOCIATION . . . *Incorporated*
1790 Broadway New York

Publication No. A-428 4–42

ORDER BLANK—MOTION PICTURES

American Social Hygiene Association
1790 Broadway, New York, N. Y.

I am interested in the items checked—

...... *for purchase.* Please send on three days approval, carriage charges to be paid by me.

...... *for rental on (give date)* ....

35 mm.	*16 mm.*			*Purchase Price*	*Daily Rental*
......	......	**Health is a Victory—the story of the fight against gonorrhea**	*35 mm.* *16 mm.*	$75 50	$5.00
(sound)					
......	......	**In Defense of the Nation**	*35 mm.* *16 mm.*	75 50	5.00
(sound)					
......	......	**Plain Facts**	*35 mm.* *16 mm.*	75 50	5.00
(sound)					
......	......	**With These Weapons**	*35 mm.* *16 mm.*	75 50	5.00
(sound)					
......	......	**The Gift of Life**	*35 mm.* *16 mm.*	115 75	3.00
(silent)					
		Strip version			5.00
......	......	**Modern Diagnosis and Treatment of Syphilis**	*35 mm.* *16 mm.*	95 60	2.00
(silent)					
......	......	**Gonorrhea in the Male**	*35 mm.* *16 mm.*	115 75	3.00
(silent)					
......	......	**Darkfield Diagnosis of Syphilis**	*16 mm.*	25	1.00
(silent)					

TALKING SLIDE FILMS

......	**For All Our Sakes**	*(The two*	$7.50	$3.00
......	**Enemy of Youth**	*for $10)*	7.50	3.00

Total *(carriage charges to be added)* $..............................

☐ I enclose $.................... ☐ Please send me bill.

Signed..

....

Street and No. ....

....

City.. State........................

SOCIAL HYGIENE MOTION PICTURES

Starting with its war-time drama films *Fit to Fight* and *The End of the Road,* in 1917, the Association has made and sponsored 19 motion pictures to date, including productions for the general public and specialized teaching films for professional and student groups.

Four of these, the timely *In Defense of the Nation,* the popular *With These Weapons, Plain Facts,* and *Health is a Victory,* just released, have been produced during the last two years. The demand for these short talking films indicates that they are among the most useful social hygiene educational aids, and other sound productions will be made as rapidly as funds and time permit.

Prints of these films are in use in all of the 48 states, in Canada, most European countries, in China, India, Egypt, South Africa, and many other far-off corners of the globe.

One factor in their continuing popularity and value is the Association's restriction of their use entirely for non-commercial purposes, and by responsible and ethical persons and agencies. All transactions or rental and purchase are protected by signed contracts which bind the consignee to hold films in his own possession except as permission is granted for release, and to use the productions only for the purposes agreed upon.

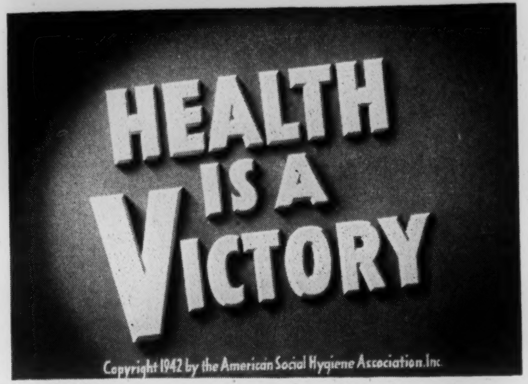
Please let us know if you would like review copies of any of these films, and send us suggestions for new films on social hygiene topics.

Any of the productions described will gladly be sent on three days approval to responsible agencies or individuals considering purchase.

Special weekly rental rates may also be secured. Transportation charges both ways are payable in all cases by the consignee.

TALKING MOTION PICTURES

NOW READY!


HEALTH IS A VICTORY
Copyright 1942 by the American Social Hygiene Association, Inc.

the story of the fight against gonorrhea

This new production, like others in the A.S.H.A. series, was made in response to a steady demand for a film to tell briefly, scientifically and accurately the facts about the campaign against gonococcus infections. It is suitable for mixed audiences of high school age and up.

Produced by Willard Pictures, who made the popular "With These Weapons," under the medical direction of Dr. Walter Clarke, assisted by J. L. Stenek of the A.S.H.A. staff, "Health is a Victory" is clear, concise and effective. The presentation is dramatic and documentary, with voice and sound throughout, and a notable cast.

Running time: 10 *to* 12 *minutes.*

Price: 35 *mm.*, $75. 16 *mm.*, $50. *Rental per day* $5.00.

For Community Leaders—A Timely Film

"In Defense of the Nation"

Released by the A.S.H.A. Committee on National Defense Activities, this film tells the facts about some old problems which confront American communities today, and what you and your community can do to help meet this challenge and guard American welfare.

Produced by the Jam Handy Organization, supervised by Dr. Walter Clarke, assisted by a Technical Advisory Committee, the film is timely, direct, effective. Intended especially for community leaders, it is suitable for any group, lay and professional, young and old. (Mixed audiences.)

A cast of 40 professional actors and a variety of interesting scenes furnish high dramatic effect. Ben Grauer, popular N.B.C. commentator, provides a thrilling narration rising to a dramatic climax.

Running time, 10 *to* 12 *minutes.*

Price: 35 *mm.*, $75. 16 *mm.*, $50. *Rental per day* $5.00.

Ask for descriptive folder A-335, *and for Pub. No.* A-334, *giving full text of narration.*

For General Groups—Adults and Young People

"With These Weapons"—the Story of Syphilis

A Spanish version is also available

This film tells briefly and effectively the facts about syphilis and its relation to personal, family and community health. Both documentary and dramatic techniques are employed, with narration by David Ross, ace announcer for the Columbia Broadcasting Syster, and a cast of over 200 persons.

With These Weapons was supervised by a special technical advisory committee, collaborating with Dr. Snow and Dr. Clarke of the A.S.H.A. staff. Willard Pictures, of New York, handled production.

Price: *35 mm.*, $75. *16 mm.*, $50. *Rental per day* $5.

For Industrial Workers and Community Groups

Plain Facts about syphilis and gonorrhea

Especially useful with industrial workers, *Plain Facts* is suitable for any group, including mixed audiences, from high-school age up.

Actual cases from the Association's large collection of clinical material show how these dangerous diseases cripple and destroy human health, while other scenes, supplemented by the text, illustrate how infection spreads, how the diseases may be diagnosed, treated and cured.

Plain Facts was produced by the A.S.H.A. staff, and the narration is by Dr. Walter Clarke.

Running Time: 10 *to* 12 *minutes.*

Price: 35 *mm.,* $75. 16 *mm.,* $50. *Rental per day* $5.00.

SILENT MOTION PICTURES

The Gift of Life

Revised and reduced in price

(A sound version is contemplated.)

A standard film on the biology of sex and reproduction. Suitable for use by teachers and lecturers with audiences of all ages from ten to twelve years and upwards. *3 reels.*

Under guidance of a scientist, a boy makes field observations, collects specimens and sees through the microscope the processes of reproduction in lower forms of plant and animal life. Going on to higher life forms, eggs are incubated and life and movement of the embryo shown at different periods. Animated diagrams show processes that can not be photographed, and with logical sequence and easy transition the study progresses to mammals and human beings. In summary, with an apt comparison of embryos, the principles of reproduction are reviewed and shown to be the same in man as in other mammals.

Price: *35 mm.,* $115. *16 mm.,* $75. *Rental per day* $3. *Strip film, 35 mm.,* $5.00.

For Physicians, Medical Students, Nurses, Medical Social Workers and Other Professional Groups

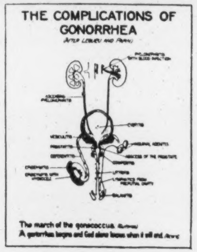
(It is recommended that showings of these films be supplemented by comments from a medical lecturer.)

The Modern Diagnosis and Treatment of Syphilis

Practical technique for the general practitioner. *2 reels.*

Photographs and animated diagrams present characteristic syphilitic lesions; methods of obtaining specimens for examination of spirochaeta pallida; methods of securing blood for the Wassermann and other serological tests and technique of making the tests; ways of obtaining and examining spinal fluid; and other diagnostic methods with which the general practitioner should be familiar. Various recognized methods of treatment are shown including administration of arsphenamine and intramuscular injection of mercury.

Price: *35 mm.,* $95. *16 mm.,* $60. *Rental per day* $2.



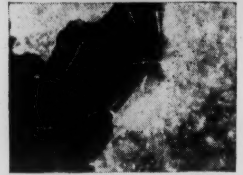
Gonorrhea in the Male

Diagnostic and treatment technique, also for the practical assistance of the general practitioner. *3 reels.*

Animated diagrams indicate physiological and pathological processes. The pathology of chronic gonorrhea, prostatic and urethral abscesses, and stricture formation is shown. Techniques shown are: securing smears from urethra; staining of the gonococcus by Gram's method; two glass tests; use of the urethroscope; prostatic massage; passing of bougies and sounds. A few of these techniques are shown in detail and explained by diagrams.

Price: *35 mm.,* $115. *16 mm.,* $75. *Rental per day* $3.

Darkfield Diagnosis of Primary Syphilis



Shows the technique of diagnosis of early syphilis by means of the darkfield microscope. *1 reel.*

Photographs of primary lesions or chancres, and diagrams showing their formation and growth. The use of the darkfield microscope is illustrated, with the technique of taking serum specimens for diagnosis.

Price: *16 mm. only,* $25. *Rental per day* $1.00.

TALKING SLIDE FILMS

For All Our Sakes

This production includes a double-faced phonograph disc, recording an effective lecture on syphilis as a public health problem. The sound is synchronized with a film strip of 160 pictures. *Running time 30 minutes. Suitable for both adults and young people.*

Price: *For film and record,* $7.50. *Rental per day* $3.

Enemy of Youth

FIND AND TREAT EVERY CASE!

A dramatic recording of the trial of *Society* for neglect of *Youth,* is synchronized with a film strip of 65 pictures. *Running time 15 minutes.* **Price:** *For film and record,* $7.50. *Rental per day* $3.

The two productions for $10.

NOTE: *For All Our Sakes* and *Enemy of Youth* are not motion pictures and cannot be shown on a motion picture projector. They may be shown on any standard talking-slide projector, of which there are several makes, ranging in price from about $75 to $100, according to the number and type of lenses, size of screen, et cetera. We shall be glad to refer you to dealers in suitable types of machines, if your neighborhood camera shop cannot supply the information. If purchase is not feasible, suitable machines may often be borrowed locally from automobile dealers or other business firms.

PROGRAM NOTES

for a showing of

ONE-REEL TALKING MOTION PICTURES

produced and distributed by

THE AMERICAN SOCIAL HYGIENE ASSOCIATION

National Archives Auditorium
Pennsylvania Avenue at Eighth Street, N. W.
Washington, D. C.

July 15, 1942

SOCIAL HYGIENE MOTION PICTURE FILMS play a part in the second World War as in the first. In 1917, the drama films "Fit to Fight" and "The End of the Road" pioneer productions of the American Social Hygiene Association, working with the War Department, were admittedly factors in reducing venereal disease rates and maintaining morale in the armed forces.

TODAY, MODERN FILMS produced by the Army, Navy, Public Health Service, and the Association, are again called to duty, to help in keeping soldiers and sailors "fit to fight"--in holding war industry manpower at top efficiency--and in building for the whole people the "total physical and moral fitness" for which President Roosevelt recently asked.

THE ONE-REEL FILMS SHOWN HERE have been made in the past two and a half years, and hundreds of prints are in circulation in the United States and other countries. Planned after careful study of needs and requests, the scenarios were written and the films produced largely by the A.S.H.A. staff, under the medical direction of Dr. Walter Clarke and with the aid of a technical advisory committee.

PROGRAM

These films are for general audiences of senior high school age and up. They are often shown as a series, or with other health and educational films.

"WITH THESE WEAPONS" - THE STORY OF SYPHILIS, recites the dramatic history of the conquest of this disease, and its relation to personal, family and community health. French and Spanish translations are available, some 35 prints of the latter now being in circulation in Latin America, through the Office of the Coordinator of Inter-American Relations.

"HEALTH IS A VICTORY" - THE STORY OF THE FIGHT AGAINST GONORRHEA, is the first film for popular audiences on this subject. An industrial plant doctor tells workers of the nature of gonorrhea, its wide prevalence and its dangers, and the hope of cure through new treatment methods and the sulfonamid compounds.

"PLAIN FACTS ABOUT SYPHILIS AND GONORRHEA" was made in answer to many requests for a more detailed description of these diseases, how they may be avoided, what to do if infection occurs, and the possibility of cure. "Plain Facts" is often used to follow "With These Weapons," or "Health is a Victory."

"IN DEFENSE OF THE NATION" Made early in 1941 to draw attention of community leaders to their responsibility for cleaning up prostitution and other unwholesome conditions in the vicinity of army camps, naval bases and war industries, and for providing "good times in good company" as morale-builders, this film has achieved general popularity.

FOR FURTHER DETAILS PLEASE SEE PRINTED FOLDERS

For further information regarding
these and other social hygiene films,
and for selected lists of social
hygiene books, pamphlets, exhibits
and other educational materials,
please write to

THE AMERICAN SOCIAL HYGIENE ASSOCIATION, Inc.

1790 Broadway, New York, N. Y.

or to

Miss Jean B. Pinney
Associate Director in Charge
Washington Liaison Office
927 15th Street, N. W.
Washington, D. C.

Phone REpublic 0954

A PROSPECTUS IN OUTLINE

Vol. VIII. "Industrial Medicine"

I. STATUS OF INDUSTRIAL MEDICINE AT THE BEGINNING OF THE NATIONAL EMERGENCY
    W. J. McConnell, M.D., Metropolitan Life Insurance Company, New York City.

II. INDUSTRIAL MEDICINE IN THE OFFICE OF EMERGENCY MANAGEMENT
  A. The Subcommittee on Industrial Health and Medicine of the Office of Defense Health and Welfare Service.
    James A. Crabtree, M.D., Executive Secretary Health and Medical Committee, Social Security Building, Washington, D. C.

  B. Committee on Industrial Medicine of the Office of Scientific Research and Development.
    E. C. Holmblad, M.D., Secretary, Committee on Industrial Medicine, National Research Council.

  C. Committee on Industrial Medicine of the Procurement and Assignment Service.
    George M. Smith, M.D., Member of Advisory Committee on Industrial Medicine, Procurement and Assignment Service.

  D. Medical Division of the Office of Civilian Defense.
    Ward L. Mould, M.D., Surgeon (R) USPHS, Chief of the Section on Industrial Plant Protection of the Medical Division of the United States Office of Civilian Defense.

III. ACTIVITIES OF THE DIVISION OF INDUSTRIAL HYGIENE, NATIONAL INSTITUTE OF HEALTH, IN THE FIELD OF INDUSTRIAL HYGIENE.
    James G. Townsend, M.D., Chief, Division of Industrial Hygiene, National Institute of Health, Bethesda, Maryland.
    and
    J. J. Bloomfield, Chief, States' Relations Section, Division of Industrial Hygiene, National Institute of Health, Bethesda, Maryland.

IV. INDUSTRIAL HYGIENE AND MEDICINE IN THE UNITED STATES ARMY
    Lieutenant Colonel A. J. Lanza, M.C., U.S.A.
    1818 H. Street NW., Washington, D. C.

V. INDUSTRIAL HYGIENE AND MEDICINE IN THE UNITED STATES NAVY
    Captain C. S. Stephenson (MC), USN, In Charge
    Division of Preventive Medicine, Navy Department, Washington, D. C.

VI. INDUSTRIAL HYGIENE AND MEDICINE OF THE UNITED STATES MARITIME COMMISSION
    Philip Drinker, Dr. Sc., Chief Health Consultant
    Division Shipyard Labor Relations,
    United States Maritime Commission, Washington, D. C.

VII. INDUSTRIAL HYGIENE CONTRIBUTIONS BY THE BUREAU OF MINES
    R. R. Sayers, M.D., Director, Bureau of Mines,
    Department of the Interior, Washington, D. C.

VIII. ACTIVITIES OF THE DEPARTMENT OF LABOR
  A. In the Conservation of Manpower
    V. A. Zimmer, Director, Division of Labor Standards,
    U. S. Department of Labor, Washington, D. C.

  B. In the Women's Bureau
    Margaret T. Mettert, Women's Bureau, Research Div.,
    U. S. Department of Labor, Washington, D. C.

IX. DEVELOPMENT OF ESSENTIAL RESEARCHES
  A. In the National Institute of Health
    Paul A. Neal, M.D., Chief, Research Section,
    National Institute of Health, Bethesda, Maryland.
    and
    Louis Schwartz, M.D., Chief, Dermatoses Investigations Section, Division of Industrial Hygiene,
    National Institute of Health, Bethesda, Maryland.

  B. In the National Research Council
    William P. Yant, Member of Committee on Industrial Medicine, National Research Council.

X. PROGRESS IN EDUCATION
  A. In Industrial Hygiene
    Philip Drinker, Dr. Sc., Department of Industrial Hygiene, Harvard University, 55 Shattuck Street,
    Boston, Massachusetts.

  B. In the Medical Profession
    Carl M. Peterson, M.D., Secretary, Council on Industrial Health, American Medical Association,
    535 North Dearborn Street, Chicago, Illinois.

XI. THE PROMOTION OF INDUSTRIAL HEALTH BY UNOFFICIAL AGENCIES
    Lieutenant-Colonel A. J. Lanza, M.C., U.S.A.
    1818 H Street NW., Washington, D. C.

XII. NEW METHODS AND SPECIAL DISEASE CONTROL PROGRAMS
  A. Psychiatry in Industry
    1. General Developments in the Field
      Lydia G. Giberson, M.D., Chairman, Subcommittee on Personal Relationships in Industry, National Research Council.

2. The Michigan Industrial Mental Health Council
   Harold G. Webster, Chairman of the Council.

B. Nutrition in Industry
   Frank G. Boudreau, M.D., Chairman, Committee on Nutrition in Industry, National Research Council.

C. Syphilis Control in Industry
   R. A. Vonderlehr, M.D., Asst. Surgeon General, Division of Venereal Diseases, U.S. Public Health Service, Washington, D. C.

D. Control of Respiratory Disease in Industry
   Leroy U. Gardner, M.D., Director, Saranac Laboratory for the Study of Tuberculosis, 7 Church Street, Saranac Lake, New York.

E. Sickness Absenteeism
   Wm. M. Gafafer, M.D., Chief, Statistical Unit, Division of Industrial Hygiene, U.S. Public Health Service, National Institute of Health, Bethesda, Maryland.

F. Placement of Handicapped Workers
   Daniel L. Lynch, M.D., New England Telephone and Telegraph Company, Boston, Massachusetts.

G. Rehabilitation
   Dr. John S. Coulter, Regional Medical Officer, Sixth Civilian Defense Region Office of Civilian Defense, 222 West Adams Street, Chicago, Illinois.

XIII. ACTIVITIES IN THE FIELD OF NURSING IN RELATION TO INDUSTRIAL HEALTH
   Miss Olive M. Whitlock, Division of Industrial Hygiene, National Institute of Health, Bethesda, Maryland.

XIV. STATUS OF INDUSTRIAL MEDICINE AT THE TERMINATION OF THE WAR
   W. J. McConnell, M.D., Metropolitan Life Insurance Company, New York City.

XV. HIGHLIGHTS AND CONCLUSIONS
   C. D. Selby, M.D., Detroit, Michigan.